



CONTROVERSIAL DRUG PLANTS



Universities Press

R Vasudevan Nair



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Preface

Ayurveda, the ancient Indian system of health care and healing is gaining popularity, not only in India but even in countries where allopathy is the accepted and established system of medicine. Encouraged by the interest shown by people in rediscovered Ayurveda, its protagonists are promoting its globalization by all possible means. Several western countries are now for popularizing herbal medicine, if not Ayurveda itself. Herbal preparations of any kind now find a ready market all over the world.

The growing awareness that herbal medicines are generally harmless and safe is the driving force behind this sudden spurt of interest in Ayurveda. More and more people are becoming conscious of the undesirable side-effects of synthetic medicines largely used in allopathy. Herbal medicines are comparatively mild and with few side-effects. They are prepared from plants and plant or animal products. So they are akin to food from which the body is built up and hence their interaction with body systems is almost a natural process. That makes Ayurveda also a natural system of medicine.

Modern Ayurveda, however, is far from being a perfect system of medicine as claimed by some of its over-enthusiastic supporters. There are some serious defects and drawbacks, which unfortunately are ignored or played down by the champions of Ayurveda.

The therapeutic efficacy of medicines depends on the quality and purity of the ingredients used. Ayurvedic medicines will be effective only if they are prepared using genuine medicinal herbs. It is in this respect that modern Ayurveda shows its inadequacy and unscientific nature. There are a large number of commonly-used raw drugs, whose botanical identities are still controversial. Several taxonomically unrelated plants are often used as one and the same raw drug. Among the practitioners of Ayurveda, there is no consensus about the botanical identity of many raw drugs in common use.

Determining the botanical identity of the raw drugs mentioned in ancient Sanskrit texts is not at all easy. Unlike

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modern botany, there are no definite rules of nomenclature in Ayurveda. Plants are named according to the whim and fancy of different authors. As a result, each drug plant is known by several names. Moreover, the same synonyms may be given to more than one plant, causing confusion in identifying the genuine plant. This confusion is compounded by the lack of a technically precise description of the complete plant. So, equating them with modern taxonomic species is a difficult and tricky process, often prone to errors.

In the olden days, when Ayurveda was taught under the Gurukula system, the identification of medicinal plants might not have been a problem. Students lived with their Gurus, and actually saw the plants that were used. Perhaps for the same reason, the Guru might not have felt the necessity to record the distinguishing characters of each of the medicinal plants. Today, Ayurveda is taught in classrooms where students gain theoretical knowledge but get little visual experience and familiarity with drug plants. They learn the Sanskrit names of the plants, their properties and uses, but fail to recognize most of them by sight, except the very familiar ones.

Perhaps the founding fathers of Ayurveda named plants only on the basis of their medicinal property or some prominent characteristic. So, they might have given the same name to several plants with the same medicinal effect. We may assume that they were naming the drugs rather than the botanical species. For example, the name *sohachara* literally means a plant of luxuriant growth; it does not refer to any one particular species. *Daruharidra* only means a weedy plant with a characteristic of turmeric, namely its colour. It could be *Berberis*, *Mahonia*, *Coscoinium* or *Morinda umbellata*. Such an assumption may be one solution for the nomenclatural confusion.

The lack of precision in identifying the plant source of raw drugs makes Ayurveda appear unscientific and unacceptable to many. Those who are trying to win global recognition for Ayurveda do not address this problem with the seriousness it

demands. Any attempts for the standardization and quality controls of medicines will be an exercise in futility until the genuine drug plants are botanically identified beyond all doubt, and such plants alone are used to prepare the medicines.

This book is only an initial attempt to present the problem to those who want to see Ayurveda gaining its rightful place among the various systems of medicine now in vogue. The book does not cover all the drug plants of doubtful identity. A deeper search will reveal many more drug plants now in use whose identity is not scientifically determined.

Due to the existing uncertainty and confusion in nomenclature today, manufacturers are using different plants as one and the same raw drug in many cases. This causes qualitative differences in medicines produced by different pharmaceutical factories. This book is an attempt to draw the attention of those who are dealing with Ayurveda, be they practitioners, manufacturers or users, to the deplorable situation existing in the field of nomenclature of medicinal plants.

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Introduction

The ancient indigenous system of medicine – Ayurveda – is being rediscovered in our own country, as a result of which its popularity is growing day by day. It is also increasingly gaining recognition in the West, the birthplace of Allopathy, as an alternative and safe system of medicine. This new awareness about the merits of Ayurveda has created a general interest in herbal products all over the world. Ayurvedic medicines are now manufactured in large factories on a commercial scale. In addition, various consumer items like cosmetics are also being produced on an industrial scale. As a result, the demand for herbal raw materials is increasing at such a rapid rate that the dwindling natural sources are not able to meet it. This situation is, thus, providing an opportunity for the use of unauthorized raw materials, deliberately or otherwise. At present, a large number of such spurious raw drugs are found in the market. Many manufacturers also use many of these spurious drugs, intentionally or otherwise.

Along with all its acclaimed merits, Ayurveda has its shortcomings too. In the present context, they are becoming more and more significant and assuming greater importance, as this is likely to lead to the further deterioration of manufactured medicines.

A very serious drawback of the Ayurvedic System at present is the difficulty in identifying the genuine medicinal herbs prescribed by the founders of the system. Their description of medicinal plants is more poetic than scientific and lacks precision, because the language they have used is not technical. Moreover, they did not follow a systematic and technical format for the description of plants. So, the interpretation of the description in Sanskrit is largely influenced by the views of the interpreter. This often leads to the erroneous



identification of more than one plant as one and the same raw drug by different authors of modern times. There are a good number of such 'controversial drugs' in use today. To cite an example, ten taxonomically unrelated plant species are claimed to be the drug *rasna*, throwing any practitioner into utter confusion.

Unscientific nomenclature is another serious defect of Ayurveda. In modern botany, one species of plant will have only one valid name, which will be a binomial. This system of one binomial indicating only one particular species is a very precise method, precluding any possibility of confusion. In Ayurveda, there is no such technically precise and uniform system of nomenclature. Dozens of names may be found given to one and the same plant, each name indicative of one minor quality or property of the plant. The common mango tree is a good example; it is known by 56 names in Sanskrit. The loose, unscientific way in which ancient authors have named plants is the source of much confusion today, because the qualitative names are applicable to more than one plant. For example, a name like *bahukantaka* can indicate any spiny plant, just as *swarnakshiri* can be any plant with yellow latex or sap. A plant can be wrongly called *peetapushpi* just because it has yellow flowers. In addition, the same name is often found given as synonym of several plants. Names like *vidari*, *nakuli*, *surasa*, etc., are examples.

There are also cases of different species of plants having common medicinal properties, owing to the presence of same organic compounds. Then, all of them can be treated as one and the same drug. *Daruharidra* is a good example. *Berberis*, *Mahonia* and *Coscinium* all contain the substance berberin, which is the active principle in these plants. So, according to geographical availability, any one of them may be used as *daruharidra*. But the situation is not so simple in all cases.

Taxonomically very divergent plants are not likely to be similar in their chemical composition. Naturally, there may be considerable difference in their medicinal properties. The use of such plants as a common drug can be accredited only after critical analytical and clinical studies. It is doubtful whether such research and verification are always carried out. At present, most manufacturers depend only on the name and not on the real botanical identity of the drug.

Over and above all this, is the confusion caused by the indiscriminate use of local names, at least in Keralam. It is not rare to find the same plant known by several local names in different regions and there are also several different plants known by the same name. Well-known medicinal plants like *plaksha*, *sahachara*, etc., are still not indisputably identified, because of the confusion created by local names. In short, the clear-cut identification of medicinal plants is a very difficult process even today, in spite of the claims of progress and development in Ayurveda.

Several plants in use today are substitutes for the genuine ones. Such substitution is necessitated by the unavailability or dire shortage of the genuine medicinal herbs. Finding acceptable substitutes is, in fact, a practical solution for the dearth of medicinal plants faced by manufacturers. The use of such plants is increasing day by day. Such substitutes are to be selected only after analytical and clinical studies, but today many plants are used without such studies. In this context, the enumeration of unauthorized drug plants in use is essential. This compilation is mostly concerned with medicinal plants used in Keralam, which is the main center where Ayurveda has survived and flourished through centuries, and from where it has been disseminated the world over.

4 Controversial Drug Plants



Terminalia chebula



abhabya

Terminalia chebula Retz. (Combretaceae)

Sanskrit - Hareetaki, Abhaya, Pathya,
Vayasta, Diviya, Vijaya, etc.

Malayalam - Kadukka

Tamil - Kadukkai, Aradi

Fruit of this tree is one of the well-known 'triphalas', very widely used in ayurvedic formulations.

Terminalia pallida Brand. (Combretaceae)

Tamil - Vellaikkadukkai

Fruits of this tree are often found mixed with fruits of the previous genuine drug and used as such. It need not be considered adulterant but being a closely related species may be treated as an acceptable substitute.

6 Controversial Drug Plants



Aquilaria agallocha



agaruh

Aquilaria agallocha Roxb. (Thymeliaceae)

Sanskrit - Agaruh, Krishnagaruh

Malayalam - Akil, Karakil

Tamil - Agar, Agalichandanam

This is the accepted genuine drug source.

Dysoxylum malabaricum Sedd. ex Hiern.
(Meliaceae)

Malayalam - Vellagil

Tamil - Vellaiakil

This is widely used in the place of 'karakil' but it can only be treated as an adulterant.



agnimanta

Premna integrifolia L. (Verbenaceae)
(*P. serratifolia* L.)

Sanskrit - Agnibijaka, Agnimanta,
Girikarnika, Havirmanta,
Jyotishka, Karnika, Nadija,
Pavaka, Vanhimula etc.

Malayalam - Munha

Tamil - Munhai, Pasumunhai

This is the plant used as 'agnimanta' in Keralam.

Premna latifolia Roxb. (Verbenaceae)

Malayalam - Krappa, Munha

Tamil - Munhai, Erumamunhai,
Pasumunhai

In some places this is used as 'agnimanta'. It may be considered as a substitute.



9

Clerodendron phlomidis L. (Verbenaceae)

Sanskrit - Agnimanta, Arani,
Laghumantha etc.

Tamil - Vadamadakki, Taludalai,
Tirugudalai, Takkari

Properties of this plant are the same as those of Premna
and is more useful in inflammations. So both may be
used as 'agnimanta', according to availability.

10 Controversial Drug Plants



Merremia emarginata



ahukarni

Merremia emarginata (Burm. f.) Hall. f.
 (Convolvulaceae)

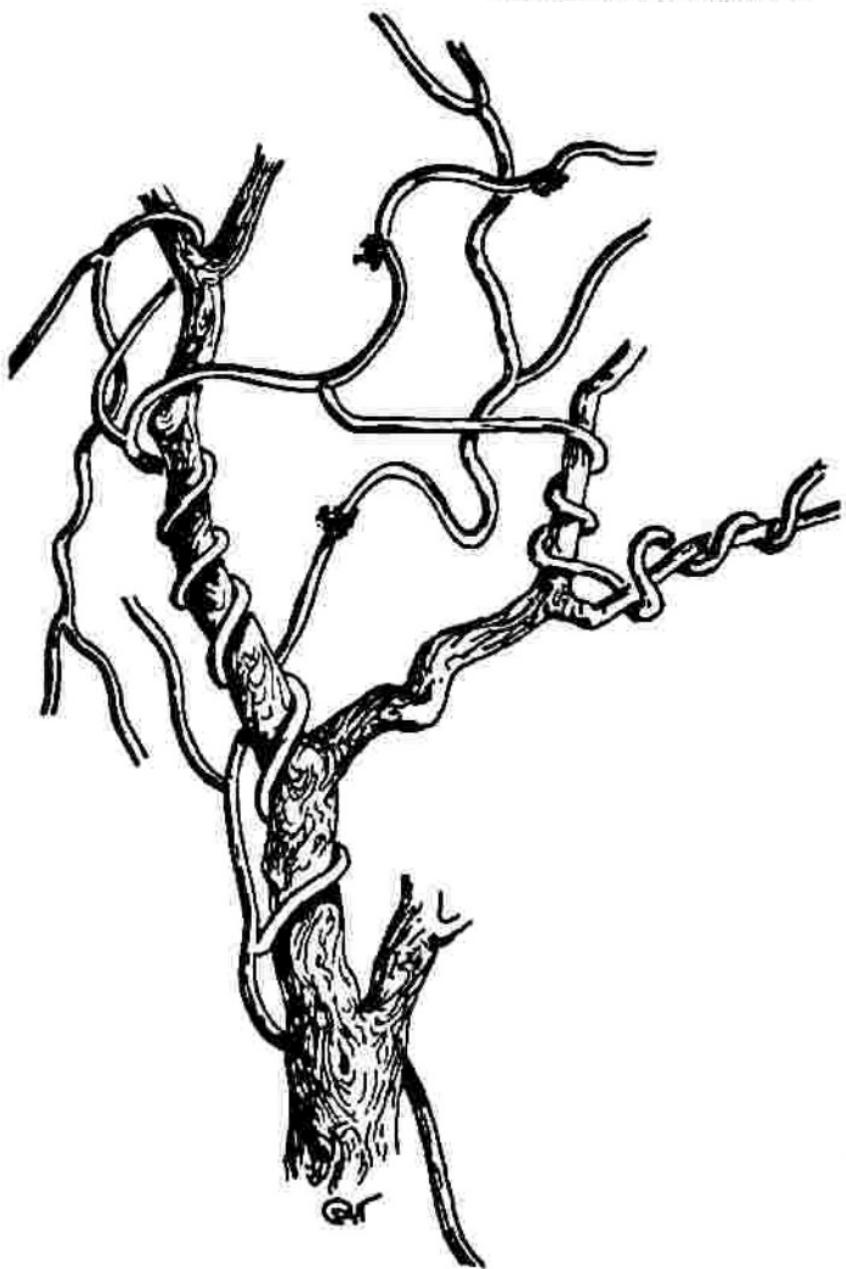
Sanskrit - Ahukarni, Akhukarni,
 Musakarni, Parnika,
 Shatamulika, Bhumichari

Malayalam - Elichevi
 Tamil - Perettaikkirai

This is the plant equated with the drug 'ahukarni' by most of the authors and practitioners.

Hemionitis arifolia (Burm.) Moore
 (Cheilanthesceae)

Name in Sanskrit, Malayalam and Tamil, if any, are not known. Unlike the previous plant, this is a fern with long-petioled triangular leaves. Original description of the plant source of the drug does not conform with this plant. However some physicians are using this as 'Ahukarni'. There is no justification for it. It is a case of wrong identification. It can be considered a spurious drug.



Cuscuta reflexa



Akasavalli

Cuscuta reflexa Roxb. (Convolvulaceae)

Sanskrit - Akasavalli, Amaravalli,

Dusparsa

Malayalam - Moodillathali, Akasavalli,

Akasagarudakkodi

Tamil - Kodiyakuntal, Satatari

Cassytha filiformis L. (Lauraceae)

Sanskrit - Akasavalli

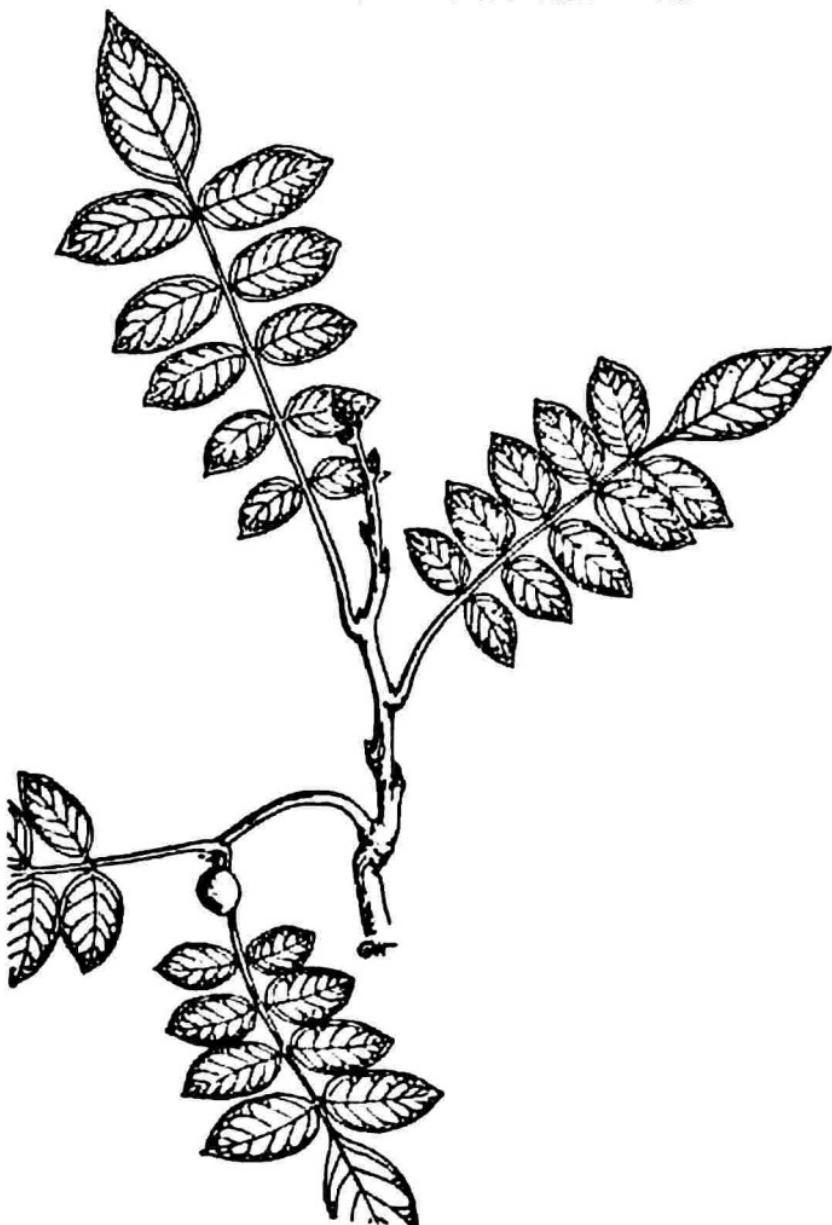
Malayalam - Akasavalli, Moodillathali

Tamil - Indiravalli, Nattai, Kottan,

Kodokkottan, Erumaikkottan

This is used as a substitute for the first.

14 Controversial Drug Plants



Juglans regia



akshota

Juglans regia (L.) var. *Kumaonia* DC.

Sanskrit - Akshota

Malayalam - Akrott

Tamil - Akrottu

Aleurites molucana Willd. (Euphorbiaceae)

Sanskrit - Akharota, Akshota,
Asphotaka, Svadumajja,
Madanaphala etc.

Tamil - Nattakrottu

Properties of this plant are said to be similar to those of *Juglans*. So many physicians use this plant as a substitute.

16 Controversial Drug Plants



Solena amplexicaulis



amlavetasa

Solena amplexicaulis (L.) Gandhi
(Cucurbitaceae)

Sanskrit - Amlavetasa, Gumti,
Satavedi, Amlabhedana,
Gulmaketa

Malayalam - Njerinjampuli, Karivivalli
Tamil - Pulivanji

The tuber of this plant is used as 'amlavetasa' in most places in Keralam. Perhaps it is only a substitute.

Garcinia pedunculata Roxb. (Guttiferae)
(Clusiaceate)

In some commentaries of ancient texts this is the plant equated with 'amlavetasa'. It is a tree. Part used is fruit-wall. No Sanskrit or vernacular name could be found for this plant.

Rheum emodi Roxb. (Polygonaceae)

Sanskrit - Gandhini, Pitimulika,
Revatchini

Tamil - Nattirevalchini,
Nattumanjatchinnakkilangu

18 Controversial Drug Plants



This plant is recommended as a substitute in Ayurvedic Formulary of India.

Rumex vesicarius L. (Polygonaceae)

Sanskrit - Amlavetasa, Amlabhedaka,
Amlasara, Amla, Gulmaketu,
Phalamla, Shatavedhi,
Varamla, Vetasamla, etc.

Tamil - Shakkankirai

Perhaps this is the genuine drugplant. As it is not commonly found in Keralam the more easily obtained *Solena amplexicaulis* is used.

Cissus repens Lamk. (Vitaceae)

Sanskrit and Tamil names not known.
Malayalam - Mrigampuli

Cissus vitiginea L. (Vitaceae)

Ampelocissus latifolia (Roxb. Planch) (Vitaceae)

Malayalam - Karandavalli
Tamil - Kattukkodimuntiri



Cayratia trifolia (L.) Domin (Vitaceae)

Sanskrit – Aranyavasini, Atyamlaparni,
Karandavalli

Malayalam – Chorivalli

Of the eight plants mentioned above, only *Garcinia pedunculata* conform with the description of the drug plant given in ancient texts. So it may be regarded as the genuine one. Because of similar properties *Rheum emodii* is recommended as acceptable substitute. The plants used in different parts of Keralam are all weak-stemmed climbers. Their officinal part is not the fruit. How far they are similar to *Garcinia pedunculata* is to be ascertained. Till then they cannot be accepted as true drug sources.

20 Controversial Drug Plants



Limnophila aromatica



āmragandha

Limnophila aromatica (L.) Merr.
(Scrophulariaceae) (*L. gratissima* Blume.)

Sanskrit - Amragandha, Ambuja

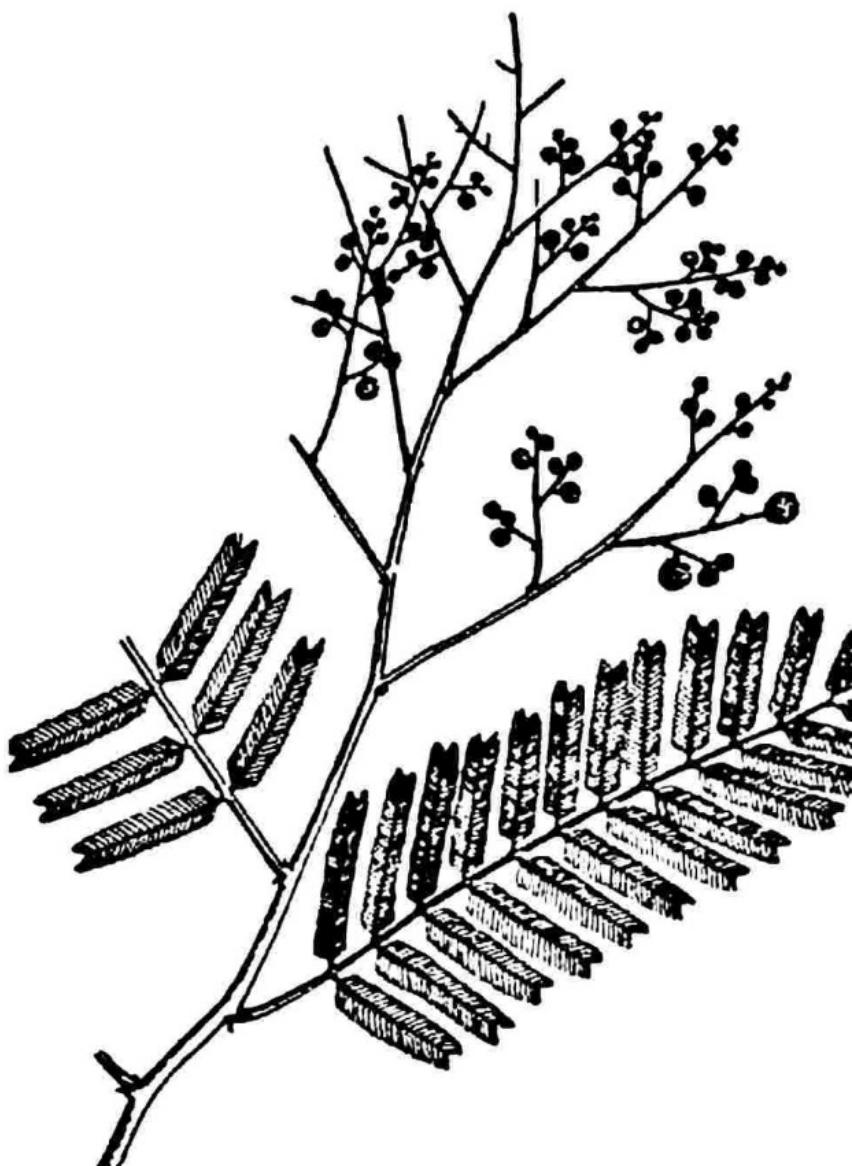
Malayalam - Manganari

Tamil - Mankainari

Limnophila gratioloides R. Br.
(Scrophulariaceae)

Sanskrit and vernacular names of this plant are also the same as for the above plant. It is also accepted as genuine drug.

22 Controversial Drug Plants



Acacia leucophloea



arimeda

Acacia leucophloea (Roxb.) Willd.
(Mimosaceae)

Sanskrit - Arimeda, Svetabarbura,
Somavalka etc.

Malayalam - Vovelam,
Pattacharayamaram

Tamil - Vovelam,
Pattacharayamaram

Acacia ferruginea DC. (Mimosaceae)

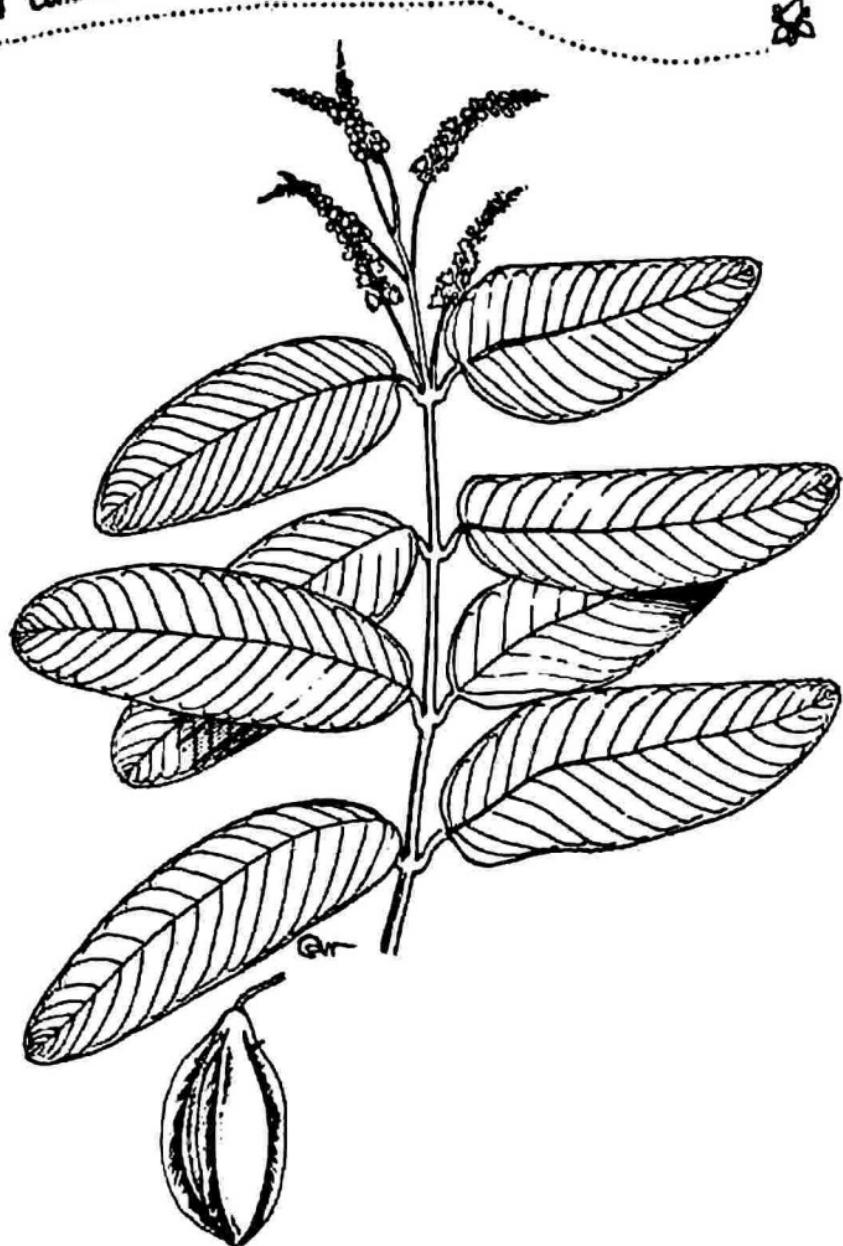
Sanskrit - Khadira, Somasara,
Somavikala, Somavriksha,
Karmmuka

Malayalam - Karuvelakam, Vanni

Tamil - Vanni, Vovel, Peykkarungali,
Sima vellel

Because of similarity of synonyms in vernacular, this tree
is treated as 'arimeda' in some parts of Keralam.

24 Controversial Drug Plants



Terminalia arjuna



arjuna

The word Arjuna means something that is white. When applied to a tree, it indicates the colour of the bark, which is the official part used. It is specifically used for the treatment of high blood pressure and other heart conditions.

Terminalia arjuna W & A. (Combretaceae)

Sanskrit	- Arjuna, Phalgunam, Partham, Indradru, Karuveeram, Devasakani, Nadeejam, Indradrumam, Karaveeraka, Veeratharu, etc.
Malayalam	- Neermaruthu, Attumaruthu, Kulamaruthu
Tamil	- Vellamaruthu

In South India, especially in Keralam, this is the tree that is the source of the Arjuna bark. Unlike in other species of *Terminalia*, the bark is light coloured and rather smooth.

Terminalia tomentosa W & A. (Combretaceae)

Sanskrit	- Asana, Krishnatvaka, etc.
Malayalam	- Karimaruthu
Tamil	- Karimaruthu, Matthi, Aruchanam, etc.

The bark of this tree is often used instead of the Arjuna bark, but it can be treated only as an adulterant.

26 Controversial Drug Plants



bisexual flower



v.s. of bisexual flower



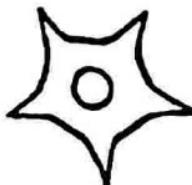
bark



leaf showing variation



fruits



t.s. of fruit

Various parts of *Terminalia arjuna*

Sterculia urens Roxb. (Sterculiaceae)

Malayalam – Tonti, Kavalam

Tamil – Kavalam, Tanakku, Sendalai,
Puttali

The bark of this tree is cream-coloured and very smooth. The gum oozing from the bark is known as *Karai-goud*, which is of some medicinal use. Although it is not reported to have properties similar to those of the *Arjuna* bark, it is used in North India, but it cannot be considered as a substitute. The colour of the bark seems to have misled people to call it *Arjuna*.

Lagerstroemia flos-reginae Rets. (Lythraceae)

Sanskrit – Arjuna

Malayalam – Manimaruthu,
Chemmaruthu, Poomaruthu,
Nirmaruthu, Nirventhekku

Tamil – Poomaruthu, Kadali,
Kadalimugai

The bark of this tree is reported to have purgative properties, but no cardio-tonic effect is ascribed to it. In some regions in North India, however, it is used as *Arjuna* bark, which is questionable. There is little, if any, justification in naming this tree *Arjuna*, because the bark is not whitish.

Only *Terminalia arjuna* is the source for genuine *arjuna* bark.



Saraca asoca



asoka

Saraca asoca (Roxb.) dewillde (Caesalpiniace)

Sanskrit - Asokah, Gatasoka,
Vanchucla, Visoka,
Tamrapallava

Malayalam - Asokam

Tamil - Asokam, Anagam,
Malaikkaruni

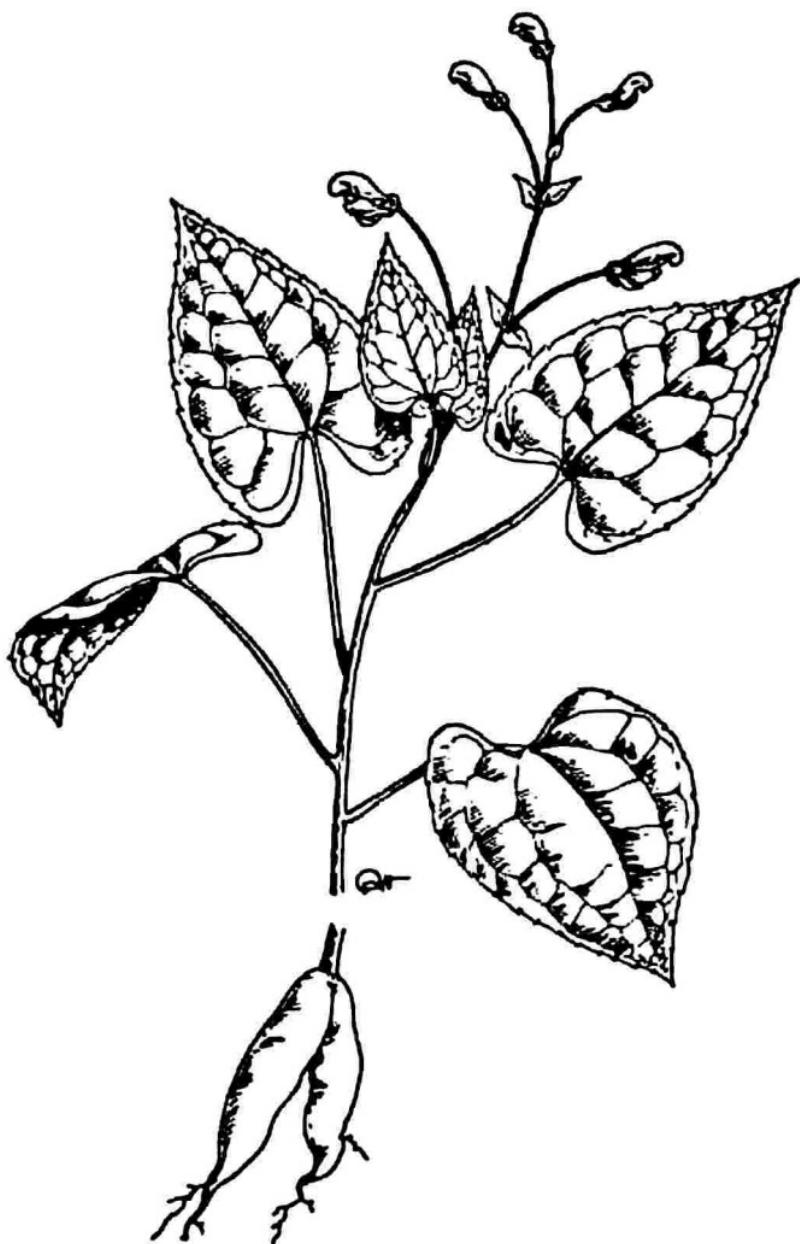
This is the genuine drug plant, the bark of which is the ingredient of many formulations for women's diseases.

Polyalthia longifolia Benth. & Hook.
(Annonaceae)

Sanskrit - Putrajiva, Devadaru
Malayalam - Aranamaram, Chorani
Tamil - Asogam, Asuvathai,
Nettilingu, Thevadaru, etc

Saraca is already an endangered and rare plant, the bark of which will not be available in the required quantities. So, the bark of Polyalthia is used with the excuse that it is called 'asokam' in some regions, while no authoritative publication has equated it with the 'Asoka' of ancient texts. Therefore, in the absence of any conclusive reference in the literature, the Polyalthia bark should be considered as an adulterant.

30 Controversial Drug Plants



Aconitum heterophyllum



ativisha

Aconitum heterophyllum Wall. ex Royle
(Ranunculaceae)

Sanskrit - Ativisha, Visha, Prativisha,
Aruni, Suklakandam,
Kashmiraja, Svetavacha etc.

Malayalam - Ativitayam
Tamil - Ativitayam

There are four varieties of this plant with white, yellow, red and black coloured roots. White coloured root is the best.

Cryptocoryne spiralis (Retz.) Fischer,
ex Wydler

Malayalam - Nattativitayam

This plant is taxonomically very distant from the first. *Aconitum* is a primitive Dicot whereas this is an advanced Monocot. It is available on the market as substitute for ativitayam. But it cannot substitute that drug. It is to be treated as spurious drug.




bala

The drug plant known as 'Bala' in Sanskrit is an ingredient of several important ayurvedic formulations. However, some controversy still exists about the botanical identity of this widely-used medicinal plant.

Several forms of *bala* are mentioned in ancient texts, each one having several synonyms. Some of the synonyms are given to more than one form, thereby causing confusion. Anyway, all these different forms of *bala* are now equated with different species of the genus *Sida* of Malvaceae.

Sida cordifolia L. (Malvaceae)

Sanskrit – Bala, Bhadrabala, Vataghni,
etc

Malayalam – Vattooram, Kattooram

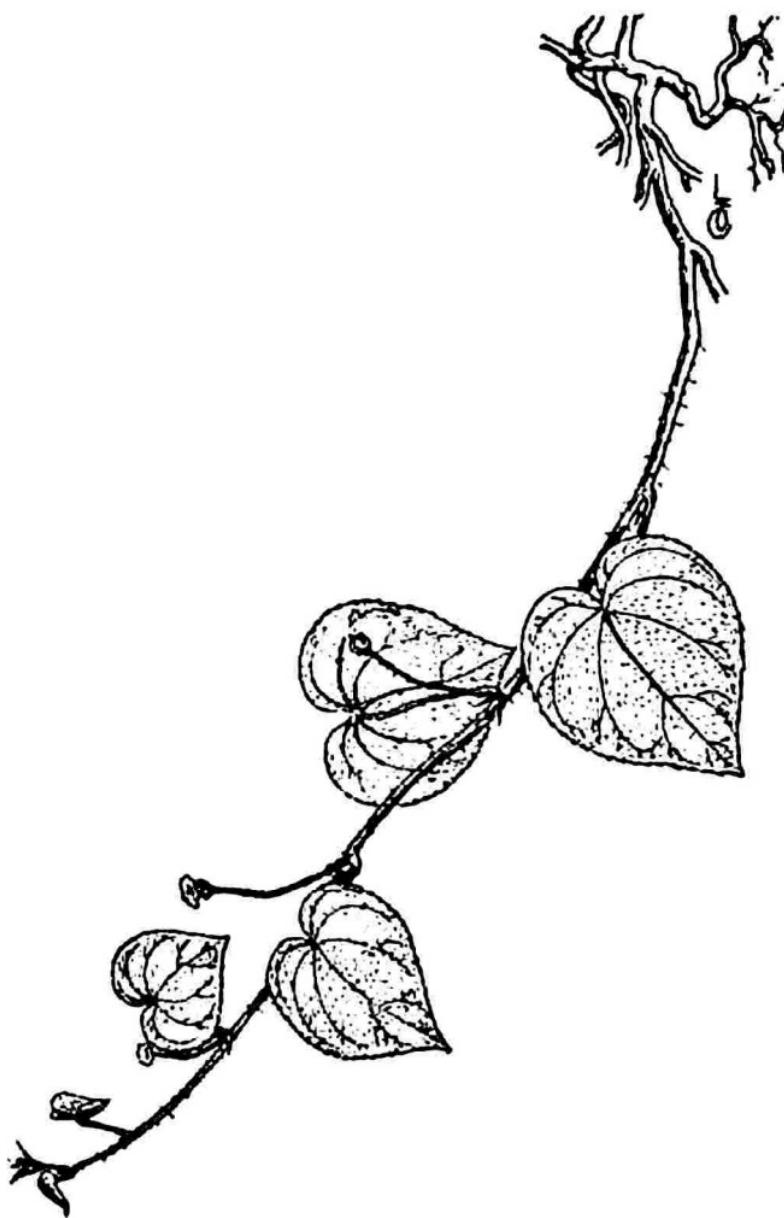
Tamil – Nilatutti,
Arivalmannaippundu

According to Bapalal, this is the only species of the genus containing the alkaloid ephedrine and, thus, should be accepted as the true drug plant *bala*. However, in Keralam, it is not used.

Sida rhombifolia L.

Sanskrit – Atibala, Bala, Devabala,
Mahabala, Vataghni, etc

34 Controversial Drug Plants



Sida cordata

Malayalam – *Anakkuruntotti,*
Vankuruntotti

Tamil – *Kuruntotti, Anaikuruntotti,*
Chitramutti, Atibala,
Sirramutti

(For Bapalal, 'Atibala' is *Abutilon indicum*)

*Sida rhombifolia L. ssp. *retusa* (L) Borssum*

Sanskrit – *Atibala*

Malayalam – *Kuruntotti*

Tamil – *Kuruntotti*

Physicians in Keralam consider this as the genuine drug plant.

Sida cordata (Burm. f) *Borssum*

Sanskrit – *Bhumibala, Nagabala*

Malayalam – *Vallikkuruntotti*

Tamil – *Palampasi*

(According to Bapalal 'Nagabala' is *gearatenax* Fiori Bos.)

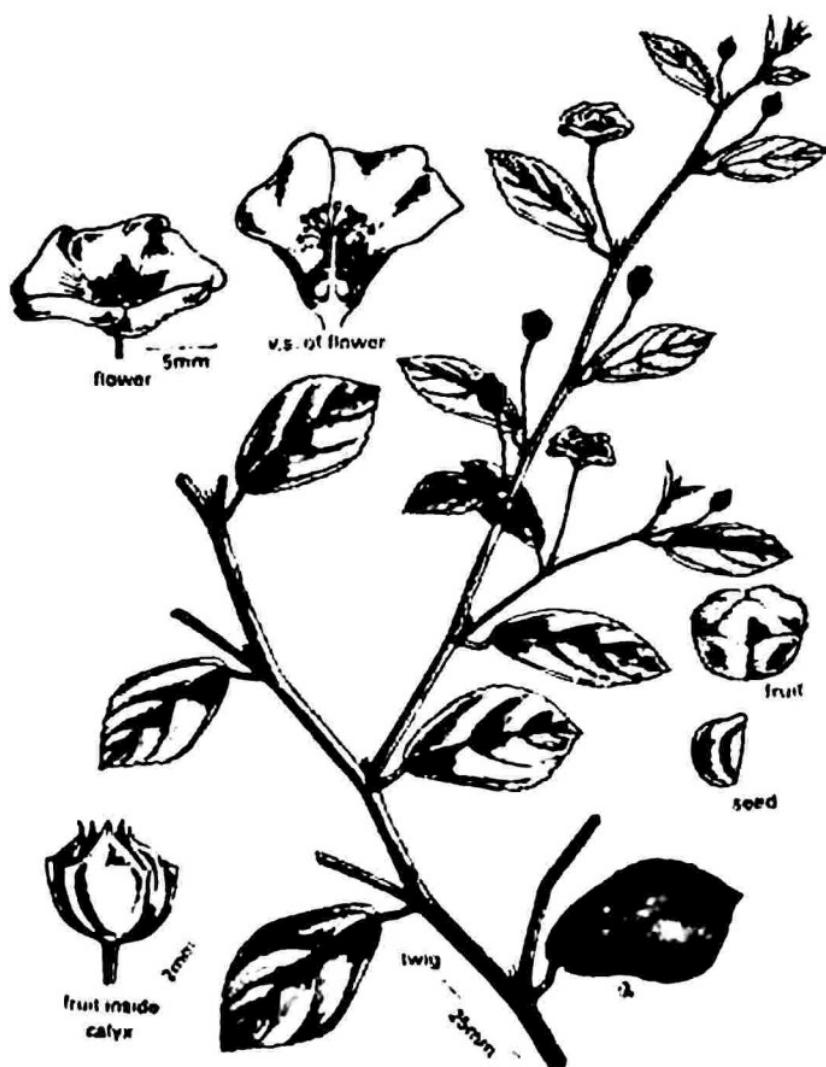
Sida acuta (Burton)

Sanskrit – *Bala, Brihannagabala,*
Rajabala

Malayalam – *Cheruparuva, Malatangi*

Tamil – *Malaitangi, Mayirmanikkam,*
Arivalmukkam

36 Controversial Drug Plants



Sida spinosa

Sida spinosa L.

Sanskrit	- Mahabala
Malayalam	- Anakkuruntotti
Tamil	- Mayirmanikkam

Abutilon indicum Sw.

Sanskrit	- Atibala, Bhuribala
Malayalam	- Vellooram, Tutti
Tamil	- Tutti, Nallatutti, Peruntutti

The use of Sanskrit synonyms is indiscriminate and, therefore, very confusing. The vernacular nomenclature is also undependable. Perhaps the ancient authors used the same names for the different species of *Sida*, because of their similar medicinal properties. So, at present, the use of any of the species mentioned above as the source of the drug *bala* may be justified.

In North India, *Sida cordifolia* is the accepted source, while in South India what is accepted is *Sida rhombifolia* ssp. *retusa*. But over-exploitation has reduced the population of this plant to such a low level that now it is not available in the required quantities. The market samples of the drug now available include the roots of all species of *Sida*.

38 Controversial Drug Plants



Sida cordifolia



bhuchampaka

Kaempferia rotunda L. (Zingiberaceae)

Sanskrit - Bhuchampaka.

Bhumichampa, Hallakah

Malayalam - Chengzhineer, Malankoova

Tamil - Neerpichin

This is a rare plant, hardly ever found growing in the wild. The Sanskrit name for this plant is very appropriate as the flowers come straight out from the soil, long before the emergence of leafy shoot. The plant and flowers are never seen together at the same time.

Lagenandra ovata (L.) Thwaites (Aracene)
(*L. toxicaria* Dalz.)

Malayalam - Karimpola, Andavazha

Tamil - Maravarachembu

As indicated by the older name, the plant has some toxicity. It is also reputed to have insecticidal properties. Can such a plant be medicinally useful; especially when there is no reference to this plant in Sanskrit literature? No Sanskrit name can be found for this plant. So, it can only be regarded as a spurious drug. However, many physicians are using it in the place of *Kaempferia rotunda*.



buka (वासुका)

Osmanthus fragrans Lour. (Oleaceae)

Sanskrit – Buka, Vasuka

Flowers of this plant yield a fragrant oil used in medicine and as flavouring material. In commentaries on Dhanvantarinighantu and Dravyagunavijnan this is the plant equated with 'buka'.

Indigofera enneaphylla L. (Papilionaceae)

Sanskrit – Vasuka

Malayalam – Cherupulladi

Tamil – Sheppunerunji

In Keralam this plant is treated as different from 'vasuka'.

Borreria articularis (L.F.) F.N. Williams
(Rubiaceae)

Sanskrit – Madnagandha, Vasuka,
Pasupatam

Malayalam – Tartaval, Kudalchurukki

Tamil – Nattachuri

This is the plant used as 'vasuka' in Keralam.

Of the above three plants the names 'madanagandha' and 'madanagandhi' are applicable only to *Osmanthus*. Once *Borreria* is accepted as 'vasuka', all the synonyms of that plant will naturally be given to it. That is done by modern interpreters. It does not mean that identification is correct. Perhaps *Borreria* is only a substitute.

Controversial Drug Plants



Plumbago indica



chitraka

Three kinds of 'chitraka' are recognized in ancient texts which are red, white and blue flowered species. Only red and white flowered ones are used medicinally.

Plumbago indica L. (P. rosea L.)
(Plumbaginaceae)

Sanskrit	- Chitraka, Agnisikha, Raktachitra, Chitravalli etc.
Malayalam	- Chethikkoduveli, Chuvanna koduveli
Tamil	- Chenkoduveli, Chithiramulam, Akkini

This is the plant used as genuine 'chitraka' all over Keralam.

Plumbago zeylanica L. (Plumbaginaceae)

Sanskrit	- All the synonyms of the first are given to this also
Malayalam	- Tumpakkoduveli, Vellakkoduveli
Tamil	- Ankoduveli, Vellaikkoduveli, Akkini

This plant is used as Chitraka in Northern India. Medicinal properties are more or less the same. But this species have considerable anti-fertility potential. That may be the reason for Kerala physicians not using it as 'chitraka'.



Baliospermum montanum



danti

Baliospermum montanum Muell – Arg.
(Euphorbiaceae)

Sanskrit – Danti, Dantika, Bhadra,
Erandapatri, Jayapala,
Kumbhi, Nepala, Nagadanti,
Nagasphota, Rechani, etc

Malayalam – Nagadanti

Tamil – Peyamanakku,
Kattamanakku, Nirettimuthu

There is no controversy about this drug, but market samples available in its name are often adulterants. The roots and seeds of this plant have purgative properties. Thus, other Euphorbiaceous plants with similar property are sold as *danti*.

Jatropha glandulifera Roxb.

Sanskrit – Nikumbha

Malayalam – Atala, Nakadanti

Tamil – Adalai, Eliyamanakku,
Puliyamanakku



Ricinus communis

Ricinus communis L.

Sanskrit	- Amanda, Chitrabija, Eranda, Panchangula, Shulashatru, Triputi, etc
Malayalam	- Avanakku, Chittaranakku, Erandum, Pantiyavanakku
Tamil	- Avanakku, Andagam, Pantiyavanakku, Erandum, Peramanakku, etc

The roots of both the above plants are sold as danti roots. The seeds of *Baliospermum* are sold as those of *Croton tigleum* (*Neervalam*).



Desmostachya bipinnata



darbha

This is the grass popularly known as sacred or sacrificial grass, because it is used in religious rites. There is difference of opinion about botanical identity of even this plant. Two binomials are suggested for this plant.

Desmostachya bipinnata (L.) Stapf. (Poaceae)

Sanskrit - Darbha, Barhi, Kusha,
Yajnabhusana etc.

Malayalam - Darbha, Darbhappul

Tamil - Darbhaippul

Most of the modern authors accept this as genuine source of the drug.

Imperata cylindrica (L.) P. Beav. (Poaceae)

Tamil - Darbhai, Darbhaippul

According to majority of authors, this must be treated as an adulterant.



devatram / deodaru



Cedrus deodara Loudon. (Pinaceae)

Sanskrit - Devadaru, Bhadradaru,
Pitadaru etc.

Malayalam - Devataram

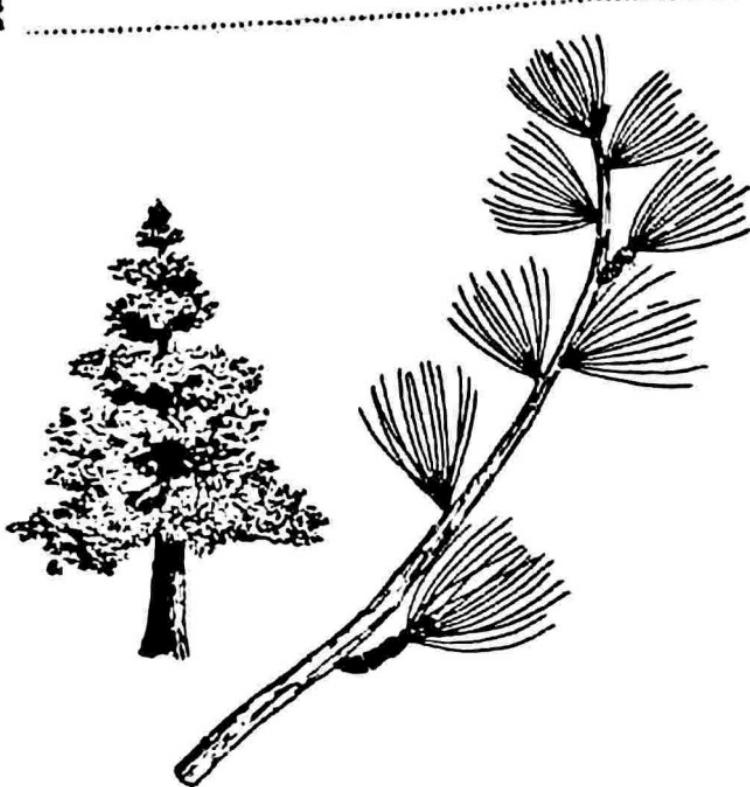
Tamil - Tevataru

Wood of this tree known as Deodar or Himalayan Cedar is the accepted drug 'devataram'. Cedar grows in the Himalayan regions. It is a gymnosperm.

Medicinal part is the wood which has an oily shin and characteristic aroma. There are also other trees related to this and belonging to the same family, havir aromatic wood. So identification of market samples very difficult especially because live specimens are not available for comparison. So adulteration is easy.

Anatomical investigation of market samples supplied as genuine 'devadaru' has shown that they are the wood of some species of *Pinus* which is a genus related to *Cedrus*. They can be treated only as adulterants. E there is a nomenclatural problem.

Some of the synonyms are the same as for *Cedrus*.



Cedrus deodara

Pinus longifolia Roxb. (Pinaceae)

Sanskrit - Sarala, Bhadradaru,
Pitadaru, etc.

Malayalam - Charalam

Tamil - Seemaidevadaru,
Suruldevadaru

Physicians in Keralam treat 'saralam' and 'devadaru' as two different drugs. One is not a substitute for the other. Using *Pinus* as devadaru is adulteration.



dravanti

According to ancient texts 'dravanti' is a bigger form of 'danti' and is also called 'brhaddanti'. This is equated with different species of *Jatropha*. Perhaps this is a case of local availability playing a part in identification of drug-plants.

Jatropha curcas L. (Euphorbiaceae)

Sanskrit - Akhuparnika, Chitra,
Dravanti, Randa,
Parvateranda etc.



Jatropha curcas



Malayalam – Kadavanakkku,
Kattavanakkku

In Keralam this is the plant used as source of 'dravanti'.

Jatropha glandulifera Roxb. (Euphorbiaceae)

Sanskrit – Nikumbha

Malayalam – Atala, Nakadanti

Tamil – Eliyamanakku, Kattamanakku

This plant is treated as an adulterant in Keralam.

Jatropha gossypifolia L. (Euphorbiaceae)

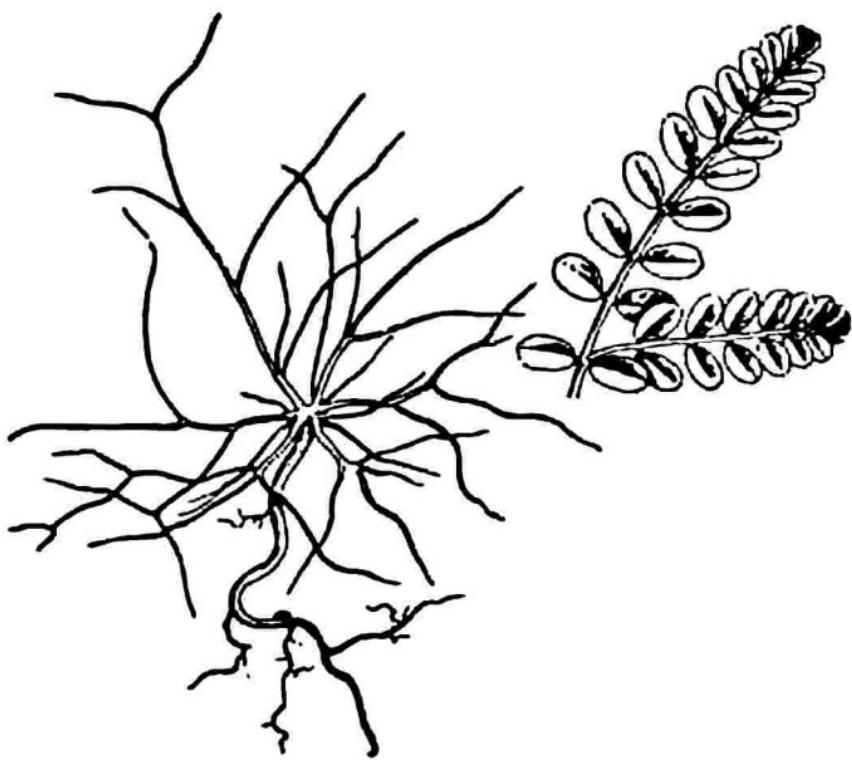
Malayalam – Kammatti,

Seemayavanakkku

Tamil – Seemayamanakku,

Kattamanakku

This plant is also treated as an adulterant by physicians in Keralam. This is a case comparable to that of 'bala', in using different species of the same genus as one and the same drug. Acceptability of such use can be established only after analytical and clinical studies of the different species.



Euphorbia thymifolia



dugdhira

Euphorbia thymifolia L. (Euphorbiaceae)

Sanskrit – Laghudugdhika, Kshira,
Vikshirini

Malayalam – Nilappala

Tamil – Sitrappaladi

Most physicians in Keralam regard this plant as dugdhika.

Euphorbia hirta L. (Euphorbiaceae)

Sanskrit – Pusitoa

Malayalam – Nilappala

Tamil – Pachaiyarissi

In some places this plant is treated as a bigger variety of 'dugdhika' and used as such. It cannot be considered an adulterant. It is another source of the drug.

Euphorbia microphylla and *Euphorbia hypericifolia* are also considered as 'laghudugdhika' by authors like Bapalal and Chunekar. But they are not used as such in Keralam.



Ela

There are two types of elam, which are both medicinally used. One is found as a wild plant, while the other is cultivated. Sanskrit names for these are many and among them the synonyms Ela, Nishkuti and Tripula are common to both. In the vernacular, two forms of elam are recognized by the names Chittelam and Perelam. As implied by the names, the former is 'smaller' and the latter 'bigger'.

The cultivated *Elettaria cardamomum* Maton is the one called 'Chittelam' in vernacular. For the other, three plants are pointed out.



Elaavalukam

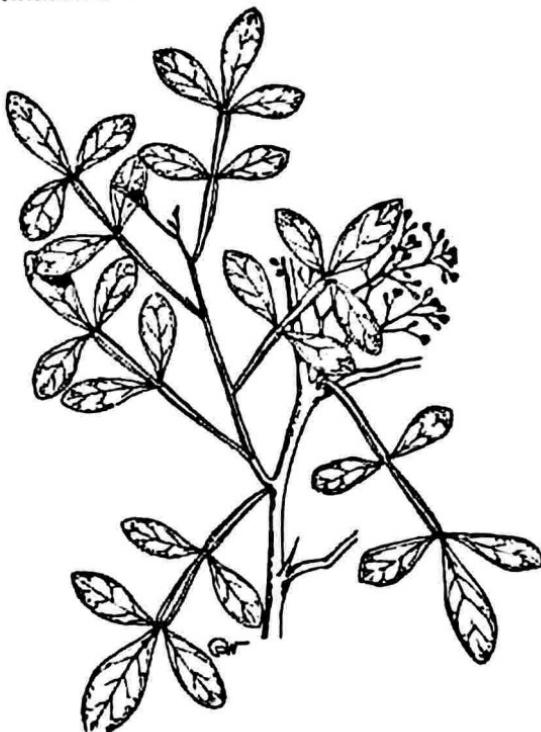
Feronia elephantum Corr. (Rutaceae)

Sanskrit – Dadhiphala, Kapitha,
Kapipriya, Manmatha,
Dantaphala, etc

Malayalam – Elavalukam, Vilarmaram

Tamil – Narivala, Vila, Kapitham,
Vilakapitham, etc

The seed of this plant is the official part.



Feronia elephantum

Cinnamomum sp. (Lauraceae)

The material supplied by some dealers and used by manufacturers has been found to be dried flower buds of some species of *Cinnamomum*. With only dry flower buds available, the species could not be identified. However, it is clear that this plant is taxonomically far removed from *Feronia*.

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gajapippali

Balanophora fungosa J.R & G. Forst.
(*Balanophoraceae*)

This plant is a total root parasite without any aerial stem and leaves. It grows as a coral-like fleshy body on the roots of forest trees. The inflorescence that appears above the soil has a superficial resemblance to that of *Scindapsus*, but the plant is not reported to be of any medicinal value. However, this plant is widely used as 'gajapippali' by manufacturers. It is evidently a spurious drug.

Scindapsus officinalis Schott. (Araceae)

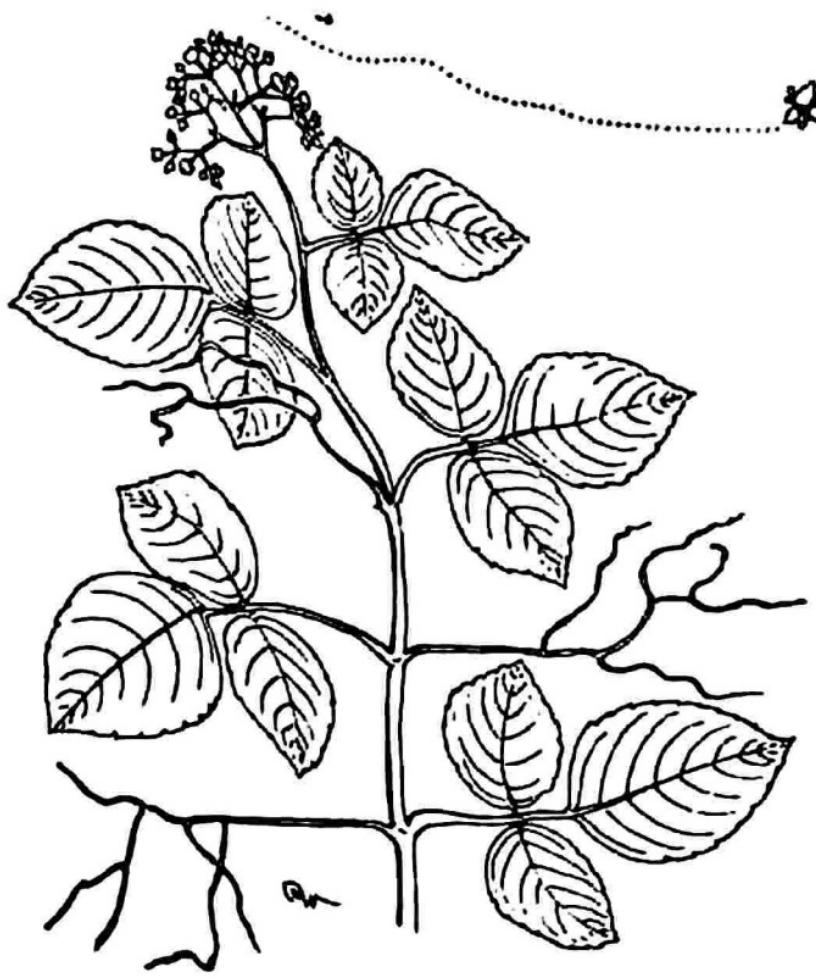
Sanskrit - Gajapippali, Karipippali,
Kolavalli, Shreyasi, etc

Malayalam - Anthippalli, Athithippalli

Tamil - Anaipippali

This is a large, epiphytic, climbing plant. Its inflorescence and fruit resemble those of pipali but are of much larger dimensions and, thus, the name gajapippali. In the fruiting stage, it is edible. This plant is not very common.

The important part is the fruit, which is accepted as raw drug of known properties in both Unani and Ayurveda.



Cayratia carnosia



gandirah

Cayratia carnosa (Wall. ex Wight) Gagnep.

Sanskrit - Gandirah, Parvika

Malayalam - Chorivalli

Tamil - Kattupirandai

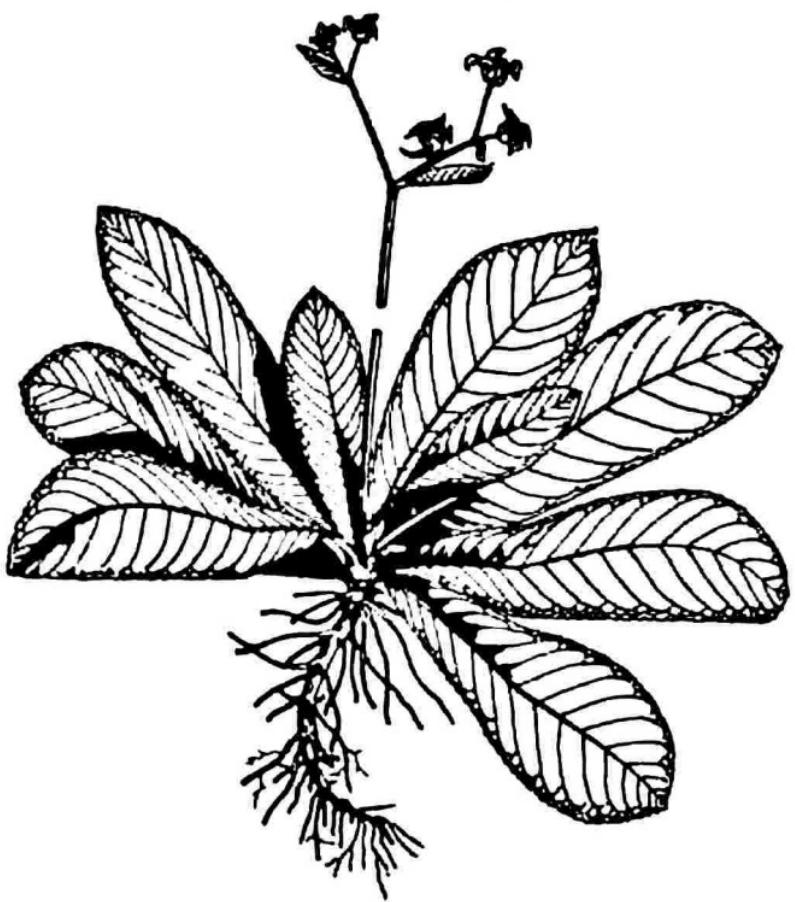
This is the accepted source of the drug.

Cayratia pedata (Lamk.) Juss. ex Gagnep.

Sanskrit - Godhapadi

Malayalam - Karikkodi, Amarchakkodi

Because of similar properties this is used as substitute for the first.



Elephantopus scaber



gojihua

The word means the tongue of cow. Leaves are the most likely part of a plant that can resemble the tongue of cow. So the plant 'gojihua' must be a plant with such leaves.

Elephantopus scaber L. (Compositae)

Sanskrit - Gojihua

Malayalam - Aanachuvadi

This is the plant used as 'gojihua' in Keralam.

Onosma bracteatum Wall. (Boraginaceae)

In N. India this plant is recognized as 'gojihua'. The resemblance to cow's tongue is in the roughness of the leaf rather than its shape. Whether this plant can substitute the first one is rather doubtful.

64 Controversial Drug Plants



Tribulus terrestris



gokshuru

The word gokshuru means the 'hoof of a cow'. So, it can be presumed that it is something divided into two like a cow's hoof.

Tribulus terrestris L. (Zygophyllaceae)

Traditionally, the fruit of this plant has been used as gokshuru in Keralam. A typical fruit has five segments, each bearing two pairs of sharp spines, one longer than the other. By means of these spines, they cling onto grazing animals and get distributed. Usually, only the fruit is used for its diuretic properties. But for the best result, whole plant has to be used.

As the fruit is small in size, it is also known as 'leghu gokshuru'.

Sanskrit – Gokshura, Gokantaka,
Bahukantaka, Shadanga,
Vanasringataka,
Swadanshtra, Trikantaka, etc

Malayalam – Njerinjil
Tamil – Njerinjil, Sirunjerinji

Pedalium murex L. (Pedaleaceae)

Sanskrit – Gokshura, Tittagokshura,
Brahatgokshura



Malayalam – Kattunjerinjil, Ananjerinjil,

Kakkamullu

Tamil – Ananjerinji, Perunjjerinji

In this plant, the diuretic property is ascribed to the mucilage contained in the plant body. The fruit is reported to have aphrodisiac properties as well. The fruit is larger than that of Tribulus and, hence, the name 'Brahatgokshuru'. It has only four spines.

Xanthium strumarium L. (Compositae)

Sanskrit – Arishta

Tamil – Maruloomatham

This is a poisonous plant, but the toxic substances are easily removed by cooking. In China, it is cultivated as a leafy vegetable. The plant is used for treatment of urogenital diseases. The fruit is provided with hooked bristles all over; at the end there are two sharp, curved spines.

Martynia diandra Glox. (Pedaliaceae)

Malayalam – Pulinakham

Tamil – Pulinakam, Telkodukkudai

This is believed to be an exotic plant, which may be the reason for the lack of any Sanskrit name and synonyms.

The fruit is cleft at the apex, into two hard, strong, curved spines. Bapal is of the opinion that this is the real gokshuru, but the properties are not the same as those of Tribulus or Pedalium.



The synonym 'trikantaka' for gokshuru does not agree with the fruit of Tribulus or Pedalium. But Tribulus is also called 'Bahukantaka'. The dissemination of the fruits through the hooves of cows and other grazing animals may, perhaps, be reason enough to call it gokshuru.

It is recommended that for aphrodisiac, tonic and nervine results pedalium murex - *Brahat gokshuru* - may be used and for diuretic effect, *Tribulus terrestris* - *Laghu gokshuru* be used.



Monochoria vaginalis



indivaram

This is a good example of indiscriminate naming of plants and use of synonyms leading to confusion and making identification difficult if not impossible. Synonyms which are usually adjectives and are interpreted according to the whims and fancies of individuals.

In practice it is found that the word 'indivaram' is interpreted both as lotus and water-lily. Even today there are people who cannot differentiate between these two water-plants. For them both are 'tamara'.

In Indian medicinal plants (Kirtikar & Basu) the names Aravinda and Kamala are given to both lotus and water-lily. Tamil name 'ampal' is also attributed to both. The name 'Neelotpala' is given to three plants – *Nymphaea stellata*, *N. rubra* and *Monochoria hastata*.

In Ayurveda Viswakosam 'indivaram' is translated as 'neelattamara' (blue lotus) and 'neelotpalam' 'karutta ampal', an interpretation unacceptable because 'tamara' found in India has only white and pink flowers and the plant is *Nelumbo nucifera* Gaertn. The name 'krutta ampal' is also meaningless because flowers of *Nymphaea* are never black.

Nymphaea rubra Roxb. is given 32 synonyms including Indivara, Amaka, Nilotpala, Raktotpala and Ravipriya.

Nymphaea stellata Willd. has 17 names including Indivar, Nilakamala, Nilotpala and Utpala.

Use of the synonym Ravipriya for *Nymphaea* is against the conventional view that water-lily is sacred to Moon-god and lotus flower to Sun-god.



The name 'Nilotpalam' is given also to another plant identified as *Monochoria hastata* Solms. of Pontederiaceae. This plant is not having any of the other synonyms of lotus and water-lily. Considering all these some conclusions may be derived.

Even modern authors have not definitely distinguished between lotus and water-lily. The synonym 'tamara' is applied to both genera. Since lotus has no blue-coloured flowers in India, the name 'neelathamara' is applicable only to water-lily with bluish flowers which is *Nymphaea stellata* Willd. (*N. nouchali* Burm. f.)

Name 'Nilotpalam' may be restricted to *Monochoria hastata* Solms. which is also an aquatic plant with blue flowers. Moreover none of the other synonyms given to lotus or water-lily is found applied to this plant. So from nomenclatural point of view 'Nilotpalam' is to be equated with *Monochoria hastata* Solms.

Monochoria hastata Solms (Pontederiaceae)

Sanskrit – Nilotpalam

Malayalam – Karinkoovalam

This plant is not found in Keralam but another closely allied species is very common. So it is used as 'Karinkoovalam' though it is known by another vernacular name.

Monochoria vaginalis Presl. (Pontederiaceae)

Sanskrit – Indivarah

Malayalam – Kakkappola



Tamil - Karimkuvalam

This may be considered a substitute for Karinkoovalam.
Local physicians call it by that name.



Citrullus colocynthis



indravaruni Vishala

Citrullus colocynthis Schrd. (Cucurbitaceae)

Malayalam – Valiya kattuvellari,
Peykummatti

Tamil – Paykummatti

Most authors equate this plant with 'Vishala'. It has several synonyms in Sanskrit, like *Indravaruni*, *Brihadvaruni*, *Chitravalli*, *Mahendravaruni*, *Vishala*, *Devi*, etc.

Cucumis trigonus Roxb. (Cucurbitaceae)

Sanskrit – Vishala, Chitrabhita,
Chitravalli, Chitraphala,
Pindaraka, Devi etc.

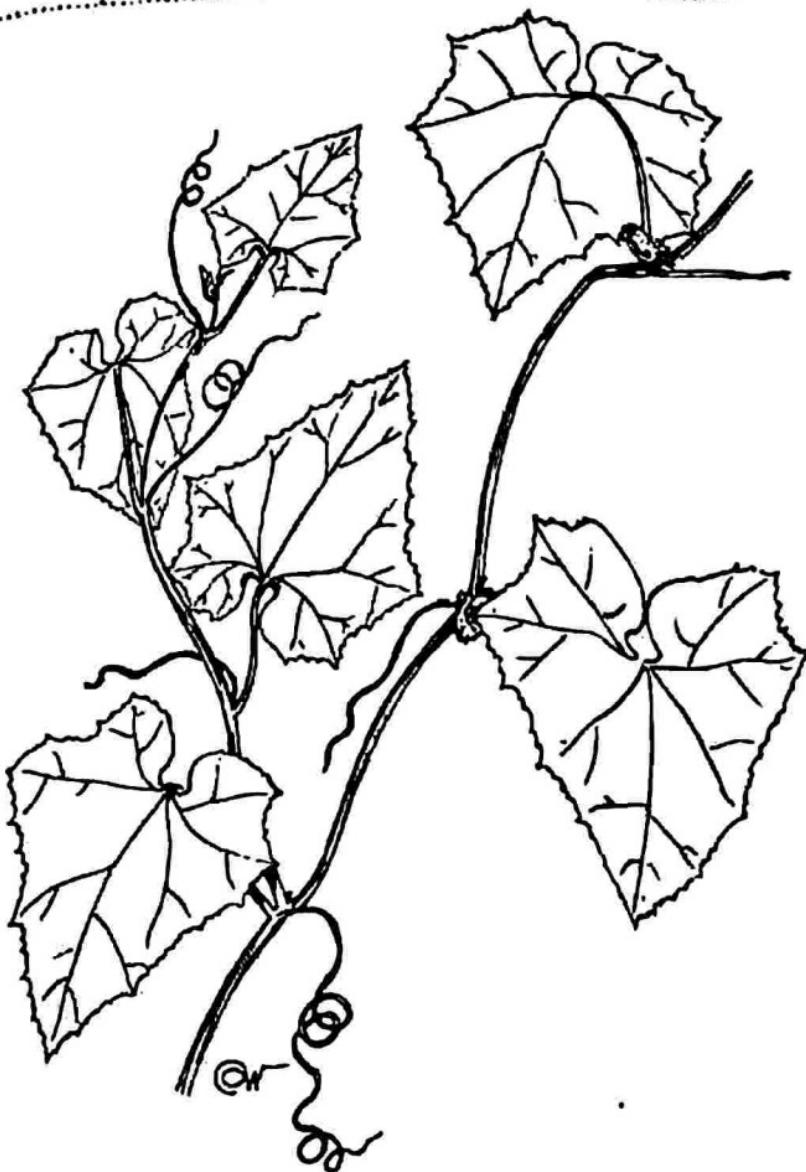
Malayalam – Cheriya Kattuvellari

Tamil – Kattuttummatti

The properties of these two plants are said to be more or less the same. That may be the reason for giving synonyms like *Vishala* and *Chitravalli* to both. In both plants, the roots have purgative properties. They are also effective in the treatment of jaundice and the vitiated condition of *Kapha*. So, the use of both these plants as *vishala* is justified.

However, there are two more plants used as *vishala*.

74 Controversial Drug Plants



Mukia maderaspatana

Melothria maderaspatana (L) Cogn.

(Cucurbitaceae)

Melothria indica Lour.

Mukia maderaspatana (L) Roem.

Mukia scabrella Arn.

Sanskrit — Trikosaki, Krtarandhra

Malayalam — Mukkappeeram,

Mukalpeeram

Tamil — Musumusukkai

This plant differs from the first two in its medicinal properties. While the roots are used in the first two cases, the whole plant is used in the third plant. Synonyms like *Vishala*, *Chitravalli*, *Indravaruni*, etc. are not given to this plant. So, its use as *vishala* is a case of mistaken identity. It should be treated only as an adulterant.

Trichosanthes palmata Roxb

Trichosanthes tricuspidata Lour.

(Cucurbitaceae)

Sanskrit — Mahakala, Kakanasa.

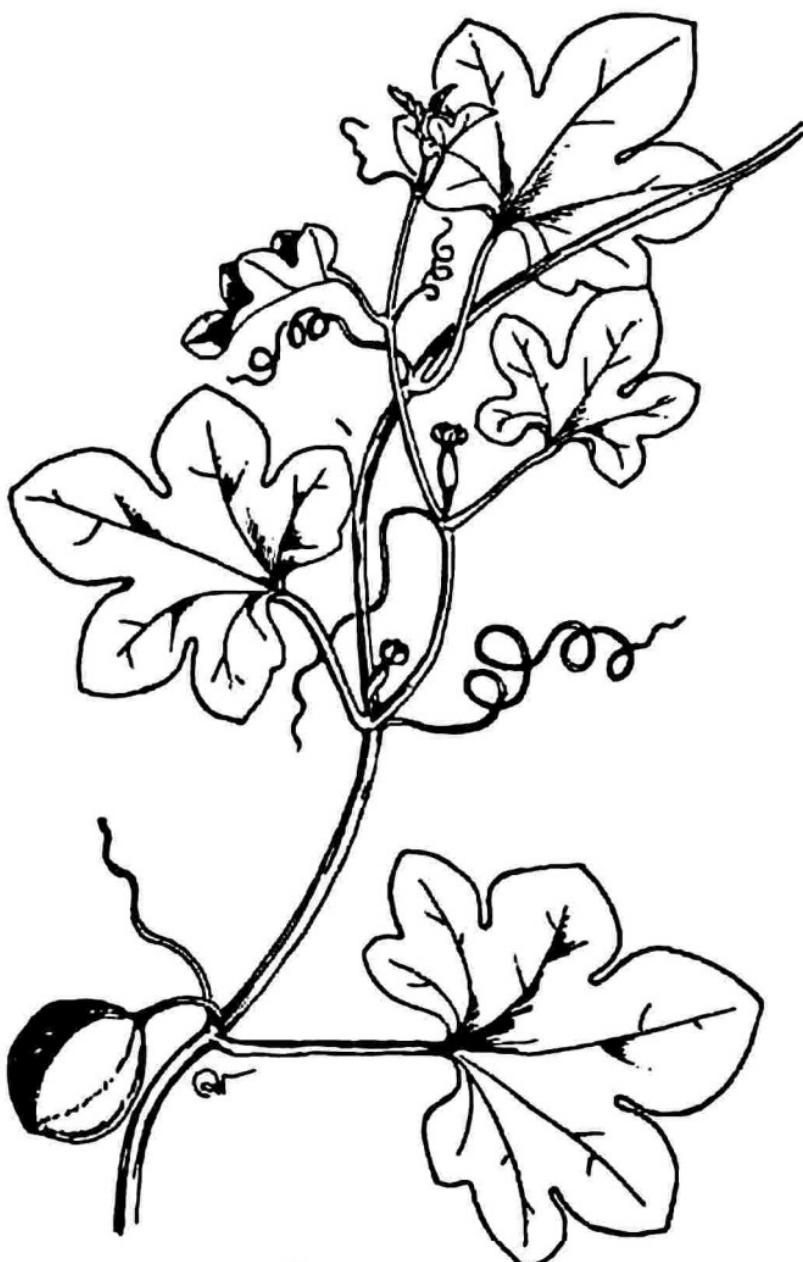
Kakatundi

Malayalam — Kakkattondi

Tamil — Korattai, Ankorattai,

Savarippalam

Both the root and fruit are officinal (used for their medicinal value by apothecaries) in this plant. They have purgative properties, but the most commonly used part is



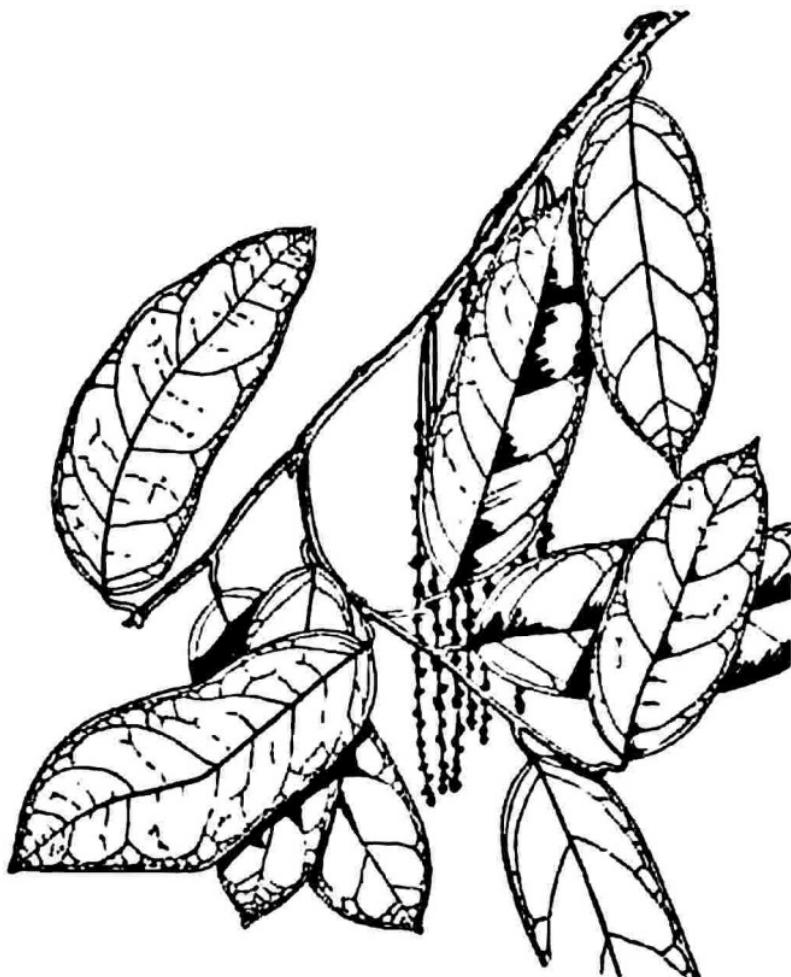
Cucumis trigonus

the fruit. It is effective in treating the vitiated conditions of Vata. Synonyms like Vishala and Indravaruni are not given to this plant. Its general qualities also differ from those of the first two plants. Thus, the use of this plant as *indravaruni* is questionable.

However all these plants are in use today. Moreover, instead of using only the root, all the plant parts are used as raw drugs.



Mukia madraspatana



Sarcostigma kleinii



ingudi

Sarcostigma kleinii Wt. & Arn. (Icacinaceae)

Sanskrit - Ingudi

Malayalam - Odal, Vellayodal

Tamil - Odal, Poovennai

This is large woody climber the seed-oil of which is highly esteemed in the treatment of rheumatism. It has other medicinal properties also.

Balanites aegyptica Del. (Simaroubaceae)

Sanskrit - Angarvriksha, Angulidala,
Anilantaka, Hingupatra,
Inguni, etc.

Malayalam - Nanjunda

Tamil - Nanjundam, Toruvattu

This is a tree of limited medicinal use. The bark is used to poison fish. Oil from the seed is not reported to be medicinal. Probably because of the synonyms 'inguda' and 'inguni' this plant is mistaken for 'ingudi' and used as such. It is better considered spurious.



jalavetasa

Barringtonia acutangula (L) Gaertn.
(Lecythidaceae)

Sanskrit - Samudraphala, Abdhiphala,
Nichula

Malayalam - Aattupera, Neerpera,
Attampu

Tamil - Kadambu, Senkadambu, Aram

Homonoia riparia Lour. (Euphorbiaceae)

Sanskrit - Jalavetasa, Vetasa,
Pashanabhedha, Kshudra-
pashanabhedha, Vaneera, etc

Malayalam - Aattuvanchi, Neervanchi,
Pulavanchi, Kattalagi

Tamil - Kattarali

There is some dispute about the botanical identity of 'Vetasa' and 'Jalavetasa' mentioned in ancient nighandus. The properties reported for both are possessed by Homonoia. So, in Keralam Homonoia is used and it is called aattuvanchi.

Humboldtia vahliana Wt. (Caesalpiniaceae)

Sanskrit - Jalavedasa



Homonnia riparia

Malayalam – Kurati, Kurappunna

Tamil – Aattuvanji

Ochreinauclea missionis (Wall.ex.Don.) Ridsd.
(Rubiaceae) (*Nanclea missionis* W x A)

Sanskrit – Jalavadasa

Malayalam – Aattuvanchi, Neervanchi

Tamil – Aattuvanji



Polygonum barbatum L. (Polygonaceae)

Malayalam - Veluthamutalamookku

Polygonum glabrum Willd. (Polygonaceae)

Malayalam - Aattalari, Churanna,
Mutalamookku

All the above plants are being used as one and the same drug, just because all of them are known by the same vernacular name Aattuvanchi. They all have medicinal properties of their own, but very little in common. So their use as velasa or jalavetasa cannot be justified. The absence of a Sanskrit synonym for jalavetasa is very significant. If it were meant to be used as velasa or jalavetasa, it would have been given the appropriate names in Sanskrit.

Besides the above four, there are two more plants also claimed to be jalavetasa. The Sanskrit name Vaneera is regarded as a synonym of jalavetsasa and is it equated with Elatine verticillata, which is a small aquatic herb. But vaneera is believed to be a woody plant on the branches of which birds can rest. That is patently not possible in the case of Elatine.

The plant Salix tetrasperma is also taken as jalavetasa by some authors. None of these plants, however, possess properties ascribed to jalavetasa. So the opinion of reputed physicians in Keralam is that Homonoia riparia is jalavetasa (aattuvanchi) has to be accepted, at least until otherwise proved.



Kadurohini

Picrorhiza kurroa Royle ex Benth.
(Scrophulariaceae)

Sanskrit	- Kadurohini, Katuka, Ashokarohini, Krishnabhedi, Chakranghi
Malayalam	- Kadukurohini
Tamil	- Kadukarohini

Helleborus niger L. (Ranunculaceae)

Sanskrit	- Krishnabhedi, Vakranga, Kadurohini
Malayalam	- Katurohini, Peetermani
Tamil	- Kadurohini

This plant in spite of its own medicinal properties, can hardly be equated with 'kadurohini' because of its toxic contents. Same synonyms need not necessarily indicate taxonomic similarity. This plant is better considered spurious.



Trichosanthes tricuspidata



kakajamkha

Leea aequata L. (Vitaceae)

- | | |
|-----------|---|
| Sanskrit | - Dasi, Kaka, Kakajankha,
Kakanasa, Kakakala,
Kakanasika, Nadikanta,
Surapadi, Paravatapadi, etc |
| Malayalam | - Kakanasika |
| Tamil | - Surapadi |

Peristrophe bicalyculata Nees. (Acanthaceae)

- | | |
|-----------|---|
| Sanskrit | - Kakajankha, Kakanghu,
Nadeekanta, Kakatiktha |
| Malayalam | - Kakajamkha, Kakkathondi |
| Tamil | - Chevira |

Both the above plants are reported to have anti-bacterial properties. Perhaps that may be the reason for giving the same synonyms to both. So, it is difficult to distinguish which is genuine and which is the substitute.

Trichosanthes tricuspidata Hour.
(Cucurbitaceae) (*T. palmata* Roxb.)

- | | |
|----------|--|
| Sanskrit | - Kakanasa, Dhamkshanasa,
Mahakala, etc |
|----------|--|



Malayalam – Kakkathondi
Tamil – Korattai, Ankorattai

The Sanskrit synonym 'Kakanasa' given to this plant is the excuse for using it as *kakajamkha*.

Capparis sepiaria L. (Capparidaceae)

Sanskrit – Kakadani, Kakadandhika,
Kakapeelu, Vaktrasallia,
Kandharu, etc
Malayalam – Kakathondi,
Valiyakkakkathondi
Tamil – Surai

Some similarity in the synonym 'kakadandhika' may perhaps be the reason for regarding this plant as *kakajamkha*.



Kakamaci

Solanum americanum Mill. (Solanaceae)
(S. nigrum L.)

- | | |
|-----------|---|
| Sanskrit | - Kakamachi, Kakamata,
Kakini, Sundari, Bahupala,
Bahutikta, Guchhaphala etc. |
| Malayalam | - Manathakkali, Manithakkali |
| Tamil | - Manathakkali |

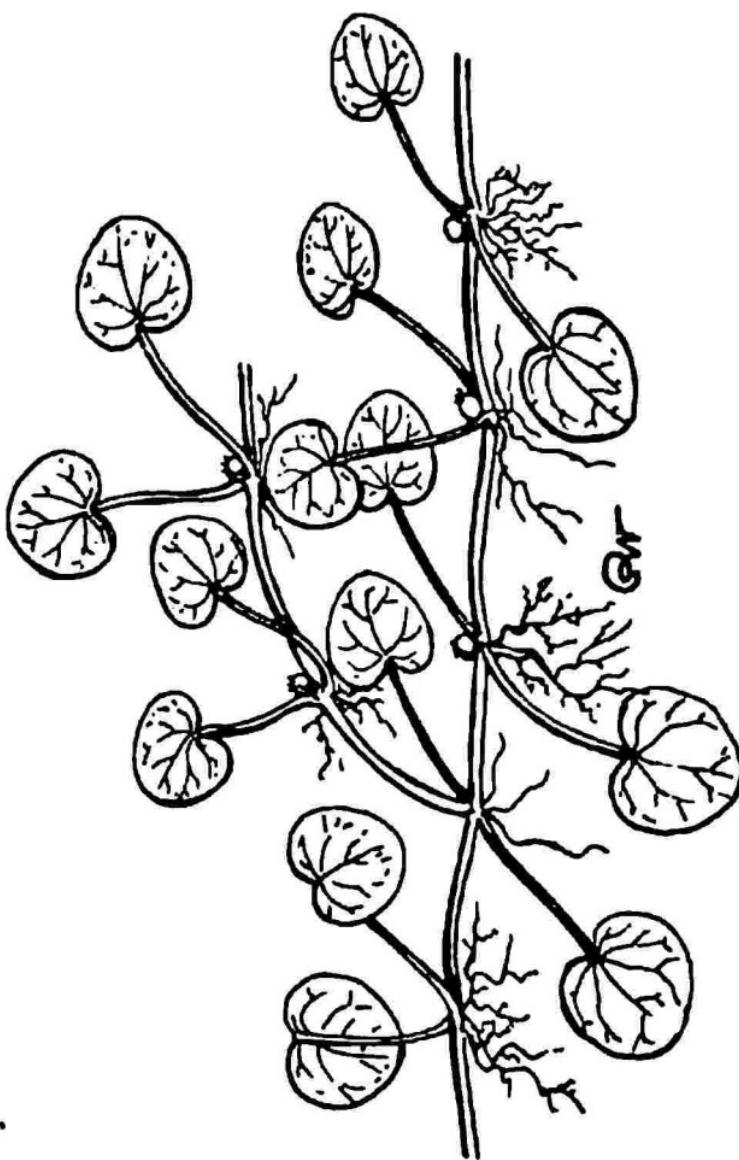
Most physicians are of the opinion that this plant is to be equated with the drug 'kakamachi'. It is also treated as different from the drug 'karimtakali'. However some physicians are of opinion that 'kakamachi' and 'karimtakali' are one and the same and equate it with a member of Rubiaceae - *Geophila*.

Geophila reniformis Don. (Rubiaceae)

- Malayalam - Karimuthil, Karimkodangal,
 Karimtakali

Whether this plant is to be called 'Karimuthil' or 'Karimkodangal' is itself problematic because most physicians are treating them as one and the same and equating it

Controversial Drug Plants



Geophila reniformis



Solanum nigrum

98 Controversial Drug Plants

with *Centella asiatica*. Regarding medicinal properties *Geophila* is more or less like 'ipecac' whereas the properties of 'kakamachi' are different. So this plant cannot be taken as 'kakamachi'.



kampillaka

Mallotus philippensis (Lam.) Muell-Arg.
(Euphorbiaceae)

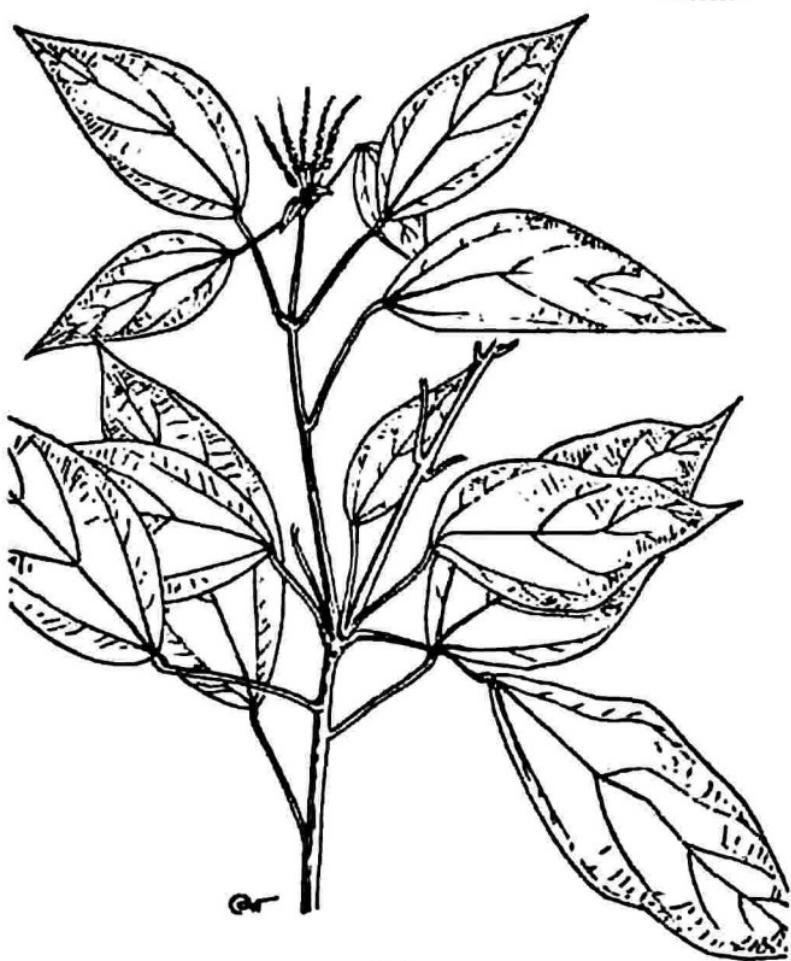
- | | |
|-----------|--|
| Sanskrit | - Kampillaka, Rechanaka,
Kapila, Lohitanga,
Raktachurnaka etc. |
| Malayalam | - Chenkolli, Kurumatakkku |
| Tamil | - Kamala, Kunkumum,
Manjanal etc. |

This is the genuine drug plant 'kampillaka'. Official part is the red powder on the surface of the fruit.

Euphorbia tirucalli L. (Euphorbiaceae)

- | | |
|-----------|--|
| Sanskrit | - Vajradruma, Bahukshira,
Trikkuntaka, Dandaruha,
Ganderi etc. |
| Malayalam | - Kolkalli, Pencikkalli, Tirikkalli,
Katterumakkalli |
| Tamil | - Kombukalli, Tachankalli,
Tirukalli, Tiruvatti |

Even reputed physicians have mistaken this plant as 'Kampillakam'. Probably the similarity of the Malayalam name 'Kampippala' to 'Kampillaka' caused this mistake. It is a spurious drug plant.



Mallotus philippensis

Tabernaemontana alternifolia L.
(Apocynaceae) (*T. heyneana* Wall.)

Malayalam - Kuruttupala, Kampippla

Use of this plant as source of 'kampillaka' is owing to a misinterpretation of Sanskrit verse as 'milk of kampillaka' instead of 'milk and kampillaka'. There is no removable red powder on the fruit of this.



Kantakari

Solanum virginianum L. (Solanaceae)
(*S. xanthocarpum* Sch. & Wendl.)

Sanskrit - Anakranta, Bahukantaka,
Kantakari, Kasaghni, etc.

Malayalam - Kantakari, Kantakarichunda

Tamil - Kandankathiri, Sutturam,
Udaravani

This is the genuine source plant of this drug.

Solanum capsicoides All. (Solanaceae)

Malayalam - Punniahachunda

In the absence of the first plant, this is widely used as a substitute. Whether it is acceptable as such is to be established.



Karaveera

Nerium oleander L. (Apocynaceae)

Sanskrit - Karaveera, Asvamaraka,
Vishavrykshanka etc.

Malayalam - Alali, Alari, Kanaveeram

Tamil - Alari, Arali, Kanaveeram,
Kaveeram

There are two varieties of the plant white and red flowered. Both are used as 'karaveera'.

Cascabela thevetia (L.) Lippold. (Apocynaceae)
(*Thevetia nerifolia* Juss.)

Sanskrit - Hayaghna, Hayamaraka,
Asvamaraka, Karaveera etc.

Malayalam - Manjayarali

Tamil - Pachaiyarali, Tiruvachppu

This plant is native of tropical America. Now it is found wild and cultivated in India. 'Rajanighandu' mentions a yellow-flowered 'karaveera' which is now equated with this plant. Once identified as such all the synonyms are applied to this plant too. Whether this plant was present in India at the time of Charaka, Susruta and other sages is a moot question.



Capparis decidua



Kareeram

Capparis aphylla Roth. (Capparidaceae)
(*C. decidua* Edgew.)

Sanskrit — Nishpatrakam, Kareeram,
Karakam, Apatra,
Marubhuruha, etc.

Malayalam — Karimullu, Kareeram.
Tamil — Karimulli, Karyal, Senkam

This is a xerophytic plant common in N.W. India and in dry places elsewhere. It is not found in W. Coast. So another plant of the same genus is used as 'kareeram'.

Capparis spinosa L. (Capparidaceae)

Sanskrit — Kakadani, Apatra, Kareera,
Grandhila, etc.

Malayalam — Kareeram, Cherukareeram

Whether this species is qualitatively similar to the previous is to be ascertained. But being a related species it may be treated as a substitute.

Capparis grandis L. (Capparidaceae)

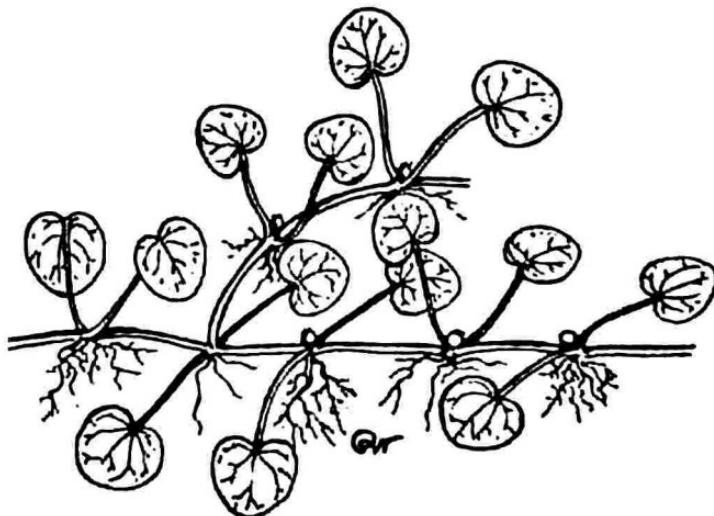
Malayalam — Waghutty, Kareeram



Tamil - Nakkulinjan, Turattu,
Vellaitturattu

This plant though called 'kareeram' in Malayalam, is of little medicinal value. It cannot substitute the real drug.

Some physicians interpret the name 'kareeram' as 'tender bamboo shoot'. The reason behind this interpretation is not clear.



Geophila reniformis



karimuthil

No Sanskrit equivalent is found for this vernacular name. However there are several synonyms in Malayalam such as Kattumuthil, Karinkodangal, Kattukodagan, and Kattukodangal. At least two different plants are being used in these names.

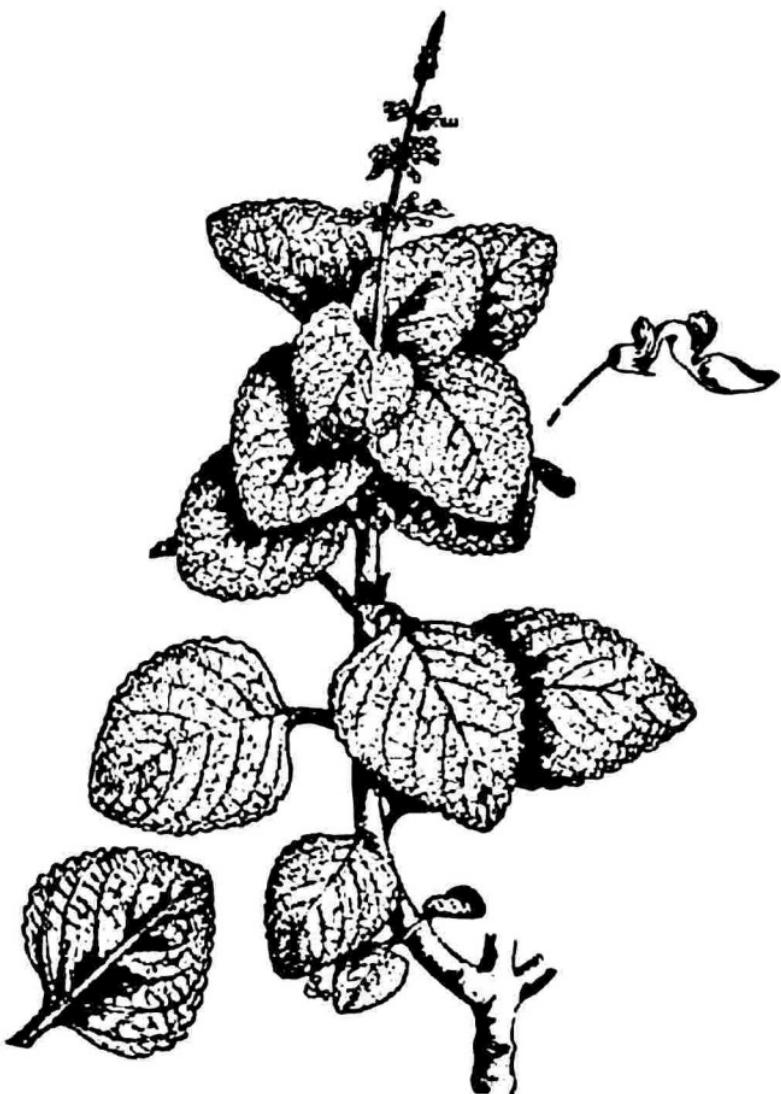
Geophila reniformis D. Don. (Rubiaceae)

This plant is said to have all the properties of 'muthil' or 'kodangal'. But the absence of a Sanskrit name raises doubts. If it is as important a drug as Centella, it ought to have one or more names in Sanskrit. No names are found in modern languages either except in Malayalam. Perhaps it is a recent discovery whose medicinal value was not known to the ancient. That may be the reason for lack of a Sanskrit name. However even for this there is a duplicate.

Merremia emarginata H. Hallier (Convolvulaceae)

Sanskrit	- Akhukarnika, Krisika, Undura-karnee, Indhurakarnika etc.
Malayalam	- Elichevi, Narayappacha, Ezhuthanippacha
Tamil	- Elakkadalai, Perattaikerai

This is a definitely known and described plant. But qualitatively it is different from Centella. So equating it with Centella is not justified. And the question which plant is the one as 'Karimuthil' or 'Karinkodangal' remains unanswered.



Coleus amboinicus



Karpuravalli

Coleus amboinicus Lour. (Lamiaceae)
 (*C. aromaticus* Benth.)

Sanskrit - Ajapada, Induparni,
 Asmantaka

Malayalam - Panikkoorka, Kanakkoorka,
 Kanjikkoorka

Tamil - Karpuravalli

This plant is found in cultivation in home gardens. It is used as an ingredient of many home remedies.

Anisochilus carnosus Wall. (Lamiaceae)

Sanskrit - Ajapada, Induparni,
 Utpalabhadra

Malayalam - Kattukoorka, Padukoorka

Tamil - Karpooravalli

This is a wild plant commonly found in rather dry situations. Though named Karpooravalli it is not so aromatic as the previous one and is of much less medicinal value. At the most it can only be a poor substitute for the first.



Kasamarda

Cassia sophera L. (Caesalpiniaceae)

Sanskrit - Kasamarda, Kasaripu,
Talapoda, Suvarnamayahari
etc.

Malayalam - Ponnamatkara, Ponnaviram
Tamil - Ponnavirai, Peravirai,
Periyatakarai

According to opinion of majority, this is the genuine source plant.

Cassia occidentalis L. (Caesalpiniaceae)

Sanskrit - Kasamarda, Arimarda,
Kasari etc.

Malayalam - Karintakara, Mattantakara,
Peyaviram, Ponnaviram

Tamil - Naṭtantakarai, Peyavirai,
Ponnavirai

There is an opinion that this plant not being indigenous to India cannot be equated with the kasamarda mentioned in ancient texts. When the sages were preparing the texts there might not have been contact or communication between different continents, and there was little

chance of this plant being introduced and established in India. So this plant might not have been studied by them.

The drug-plants mentioned in ancient Sanskrit texts are equated with botanical binomials only by interpreting the descriptions which is largely a subjective process. Descriptions in Sanskrit are neither precise nor scientific. There is always a chance for error, of the drug-plant getting a wrong binomial. Once a binomial is assigned to a particular drug-plant, all the synonyms of that plant found in the Sanskrit texts will also be given to that binomial. Thus once *Cassia sophera* is accepted as 'kasamarda' all the synonyms of that drug will be applied to that plant. This must have happened in the case of *C. occidentalis*, just as in so many other cases.

Now both the plants are being used as 'Kasamarda'.



Gentiana kurroa



kiratatikta

Three different plants are identified with the drug and used in different regions according to availability. Main properties are more or less the same. So they may be treated as substitutes.

***Gentiana kurroa* Royle. (Gentianaceae)**

Sanskrit	- Kirata tikta, Aranyatikta, Katuki
Malayalam	- Kiriattu
Tamil	- Nilavembu, Chirayattu

***Swertia chirayita* L. (Gentianaceae)**

Sanskrit	- Kiratatikta, Bhunimba, Jwarantaka, Kiratanama
Malayalam	- Kiriattu, Nilaveppu
Tamil	- Nilavembu Chirayattu

***Andrographis paniculata* Nees. (Acanthaceae)**

Sanskrit	- Bhunimba, Kirata, Mahatikta
Malayalam	- Kiriattu, Nilakanjiram
Tamil	- Nilavempu, Verkiriattu



Solanum indicum L. (Solanaceae)

Sanskrit - Akranta, Asparsi, Brahati,

Mahatikranta, Kranta,

Mahati

Malayalam - Ceruchunda, Putharichunda,

Cheruvazhutana

Tamil - Karimulli, Siruvalatalai

Even this plant is reported to be used as 'Kiratatikta' in some places (Iyer & Kolammal). There is little justification for such use.



Kokilaksha

Hygrophila schulli (Ham.) Almeida.
 (Acanthaceae) (*Astteracantha longifolia* (L.)
 Nees.)

Sanskrit - Atichhatra, Ikshugandha,
 Kshura, Kokilanayana,
 Vajrakantaka, Shrigali etc.

Malayalam - Vayalchulli

Tamil - Nirmalli, Neremulli

In Keralam this is the accepted source plant.

Artanema longifolium (L.) Varke.
 (Scrophulariaceae)

In some places this plant is equated with 'Kokilaksha'.
 The synonym Vajrakantaka clearly indicates a spiny plant,
 which Artanema is not. So it can only be treated as an
 adulterant.



Crocus sativus



Kunkumum

Crocus sativus L. (Iridaceae)

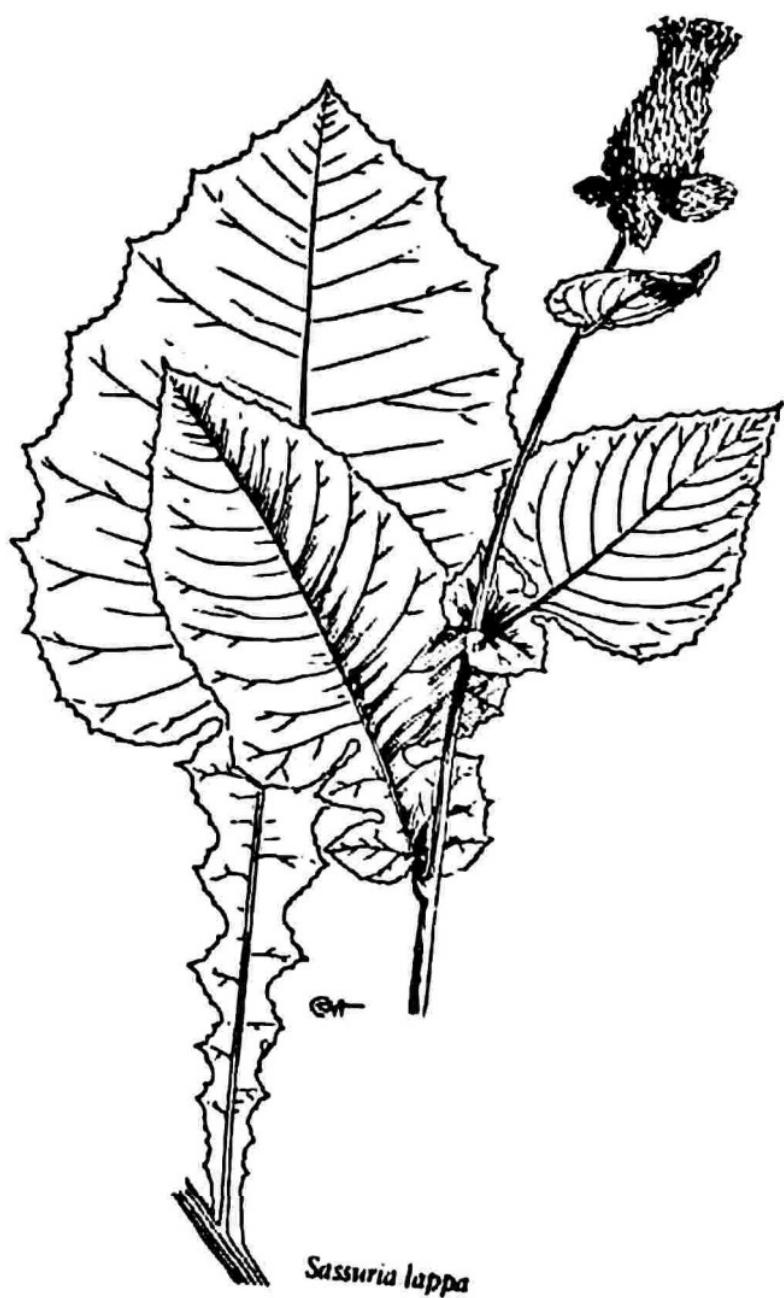
Sanskrit — Kunkumum, Kesaram,
Lohita, Pitaka, Rakta,
Raktashandana

Malayalam — Kunkumappu

Tamil — Kunkumappu

Only the stigma is said to be of drug value but market samples contain whole styles and stamens.

Artificially dyed and dried petals of some plants of Compositae family such as *Chrysanthemum*, *Calendula* and *Carthamus* are used to adulterate the above drug. Even tissue paper is used for the purpose.



Sassuria lappa



kushta

Sassuria lappa Clarke (Compositae)

- Sanskrit - Amaya, Bhasura, Dushta,
Haribhadraka, Kubera, Kushta,
Pavana, Pushkara, etc
- Malayalam - Kottam, Sepuddy,
Seemakottam
- Tamil - Kostum, Putehuk, Kottam

There is agreement that the genuine raw drug, Kushta, is the root of this plant. But confusion arises because some of the synonyms of this plant are also given to another taxonomically very distant plant.

Costus speciosus Sm. (Zingiberaceae)

- Sanskrit - Kushta, Kushtabherda,
Pushkaramula
- Malayalam - Channa, Channakkuvva,
Kottam, Pathimukam,
Pushkaramoolam
- Tamil - Kugaimanja, Malai vasampu,
Kottam, Vengottam

This plant is a monocot, while the first one is a dicot. It is doubtful that plants that are so taxonomically divergent can have same medicinal properties. If, however, they are qualitatively similar, the second plant may be treated as a substitute.



takshmana

Ipomoea sepia Roxb.

Sanskrit - Lakshmana, Manjika, Nagini,
Putrajanani etc.

Malayalam - Tirutali

Tamil - Talikkirai, Talikkodi

Ipomoea obscura Kar-Gawl. (Convolvulaceae)

Sanskrit - Vachagandha

Malayalam - Cherutali

Tamil - Chirutali

This plant is very similar to the species mentioned above and often difficult to distinguish from it. So it is often used in its place. It may be accepted as a substitute.



todhra

Symplocos cochinchinensis (Lour.) Moore ssp.
laurina (Retz.) Nootebroom (Symplocaceae)

Sanskrit - Lodhra, Mahalodhra,
Bhillataru, etc.

Malayalam - Pachotti

Tamil - Kamblivetti



Symplocos cochinchinensis



Symplocos racemosa Roxb. (Symplocaceae)

Both the above species are used as 'lodhra' in all parts of India.

Palaquium ellipticum Blanco. (Sapotaceae)

Lushington has given the Malayalam name 'pachotti' to this plant. The name is significant because it is a laticiferous tree. In Marathi language it is called 'panchoti' and 'panchonta' in Kanarese. Why modern authors ignored this plant is difficult to explain.

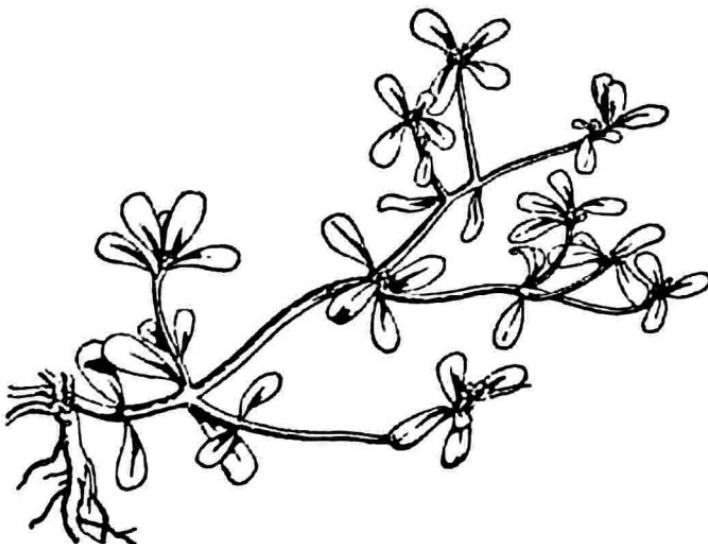


tonika

Two varieties of 'Ionika' are mentioned in ancient texts. They are 'leghu Ionika' or 'Ioni' and 'brhatloni' or 'gholika'. They are traditionally equated with *Portulaca quadrifida* L. and *P. oleracea* L. respectively. However in practice this distinction is ignored.

Portulaca oleracea L. (Portulacaceae)

Sanskrit - Brihalloni, Gholika, Loni,
Lonika etc.



Portulaca oleracea



- Malayalam** – Kozhuppa, Koricheera
Tamil – Paruppukkeerai,
 Passalakkirai, Pulikkeerai

This is believed to be the genuine source of the drug.

***Alternanthera sessilis* (L.) R. Br. ex DC.**
(Amaranthaceae)

- Sanskrit** – Matsyakshi, Pattura
Malayalam – Meenangani, Ponnangani,
 Ponnankanni

Though widely used in the place of 'Ionika' this plant cannot be accepted as the genuine source. Atmost it is only a substitute.

***Glinus oppositifolius* (L.) A. DC.**
(Molluginaceae) (*Mollugo oppositifolia* L.)

- Sanskrit** – Phanija
Tamil – Kachantarai

Use of this plant as Ionika is questionable.



Manjishtha

Rubia cordifolia L. (Rubiaceae)

In this case, there is no controversy about the botanical identity of the source plant. The official part is the root, containing an orange pigment, which is a mixture of 'purpurin' and 'manjistin'.

The roots of this plant are very slender and limited in growth. They are found at the base of the main stem as well as at the nodes of stolon-like, leafless branches running under the soil. These branches are several millimetres thick, cylindric, and with some pigmentation, the concentration of which is much less than in the roots. It is difficult to get the true roots in any appreciable quantity.

Although the root is regarded as the officinal part, the market sample is almost entirely composed of the stolon-like stems. However, it is not a case of adulteration; the source plant is genuine. Some laypersons, without considering the morphological differences, usually call all the parts of the plant found within the soil as the roots. Moreover, the true roots will not be available in the required quantities. The presence of the same pigments in the stems makes them also officinal like the roots. So, this is only a case of mistaken morphological identity and not adulteration.



Ocimum kilimandscharicum



Maruvaka

Ocimum kilimandscharicum Guerke
(Lamiaceae)

Sanskrit - Maruvaka, Marutam

Malayalam - Karpoorathulasi

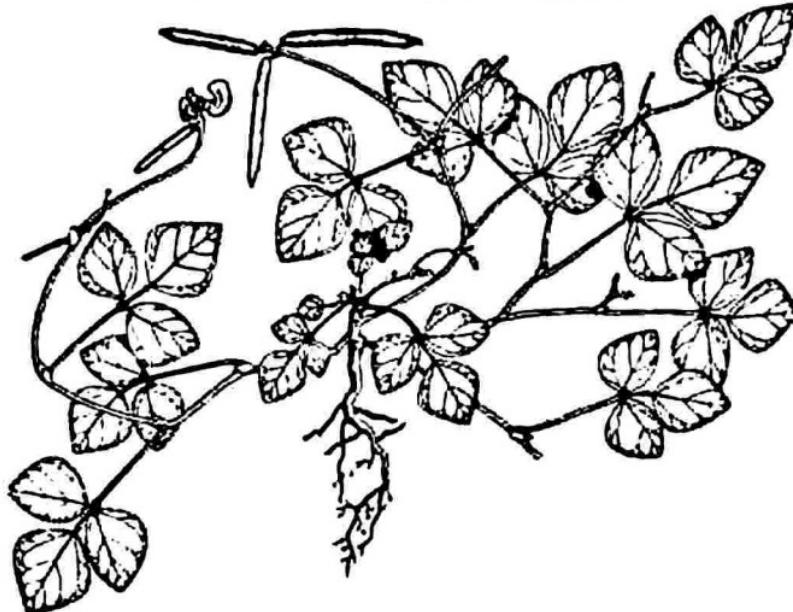
Majorana hortensis Moench (Lamiaceae)

Sanskrit - Marva.. Kharapatra.
Maruphani, Maruvaka.
Sameeranam

Malayalam - Karpoorathulasi

Tamil - Marukkozhunthu, Marrau.
Marvu

Both the above plants are accepted as 'maruvaka'.



Vigna radiata





Mashaparni

Vigna radiata (L.) Wilczek. var. *sublobata*
 (Roxb.) Verdc.
 (*Phaseolus sublobatus* Roxb.) (Papilionaceae)

Sanskrit - Mashaparni

Malayalam - Kattuzhunnu

Tamil - Kattulunnu

This is believed to be the genuine drug. But in Keralam some other plants of the same family are also used as 'mashaparni'. Being members of the same family they are taxonomically related. Hence they may be treated as substitute. Besides some other plants are also being used.

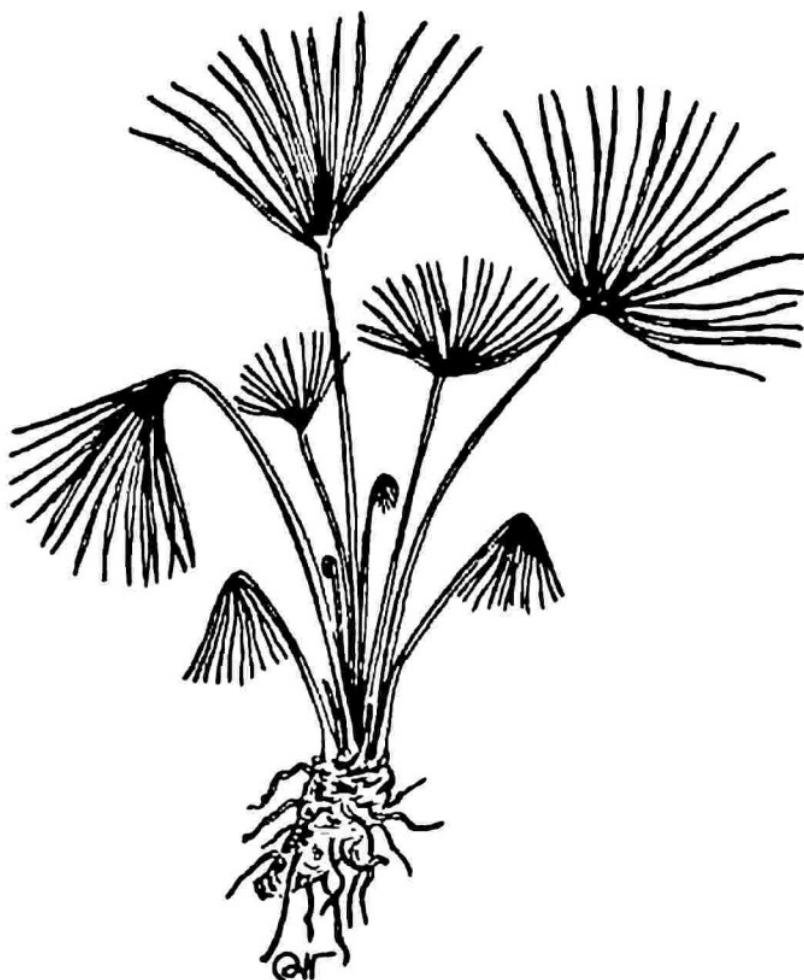
Teramnus labialis (L.f.) Sprengel

(Papilionaceae)

Phaseolus dalzelli Cooke

Atylosia goensis Dalz.

All the above three plants may be treated as substitutes.



Actinopteris dichotoma



Mayurasikha

The name indicates something that resembles the feathers of peacock, and to be more exact, the feathers adorning its head.

Actinopteris dichotoma Bedd. (Polypodiaceae)

Sanskrit — Mayursikha

Malayalam — Nammukhappullu,
Mayilddumsikha

Tamil — Mayiladumsikhai

This fern is said to be used as anthelmintic and styptic. The leaves of this plant are more or less circular in outline and have numerous radiating lines, so that they have a superficial resemblance to a peacock's outspread tail.

The word 'sikha' means something that grows on the head. The appendages that grow on the heads of peacocks, though, have little resemblance to the leaves of this plant.

Adiantum caudatum L. (Polypodicceae)

Sanskrit — Mayursikha

This is also a fern, reported to be used as cure for cough and fever and for skin diseases. Two other species of the



genus - *A. lunulatum* Burm and *A. venustum* Don. — are known as 'Hamsapadi', probably because the pinnae resemble the webbed feet of the swan. Then, why is one species is equated with mayursikha?

***Celosia argentea* var. *cristata* Haines
(Amaranthaceae)**

Sanskrit	- Barhichuda, Rekisikha, Mayursikha, Nilakanthasikha, Shikha, etc
Malayalam	- Kozhippoovu, Mylosikha

This is a dicot of the Amaranth family. The terminal inflorescence becomes flattened and crested. So, there is some resemblance to the crest on the head of a peacock. This plant has much more medicinal qualities than the above two and is used for treating several disease conditions. But in Keralam, *Actinopteris* is accepted as 'Mayursikha'. Here again is a case of subjective opinion.



ମେଶାସ୍ରିଙ୍ଗୀ and ମେଶାସ୍ରିଙ୍ଗା

Susruta has used both names. The name Meshasringi is included in Varunadi gana. This gana includes all forms of plants. The name Meshasringa is placed in Salasaradigana in which all the members are large trees. So, according to Susruta, Meshasringa is a tree. The name Meshasringi is in the feminine gender and so it is believed to be a climber.

Charaka mentions about boxes for storing medicines being made of Meshasringa wood, again indicating that it is a tree. So it is reasonable to conclude that Meshasringi and Meshasringa are two different plants. They are not one and the same as believed by some physicians. They are identified as follows.

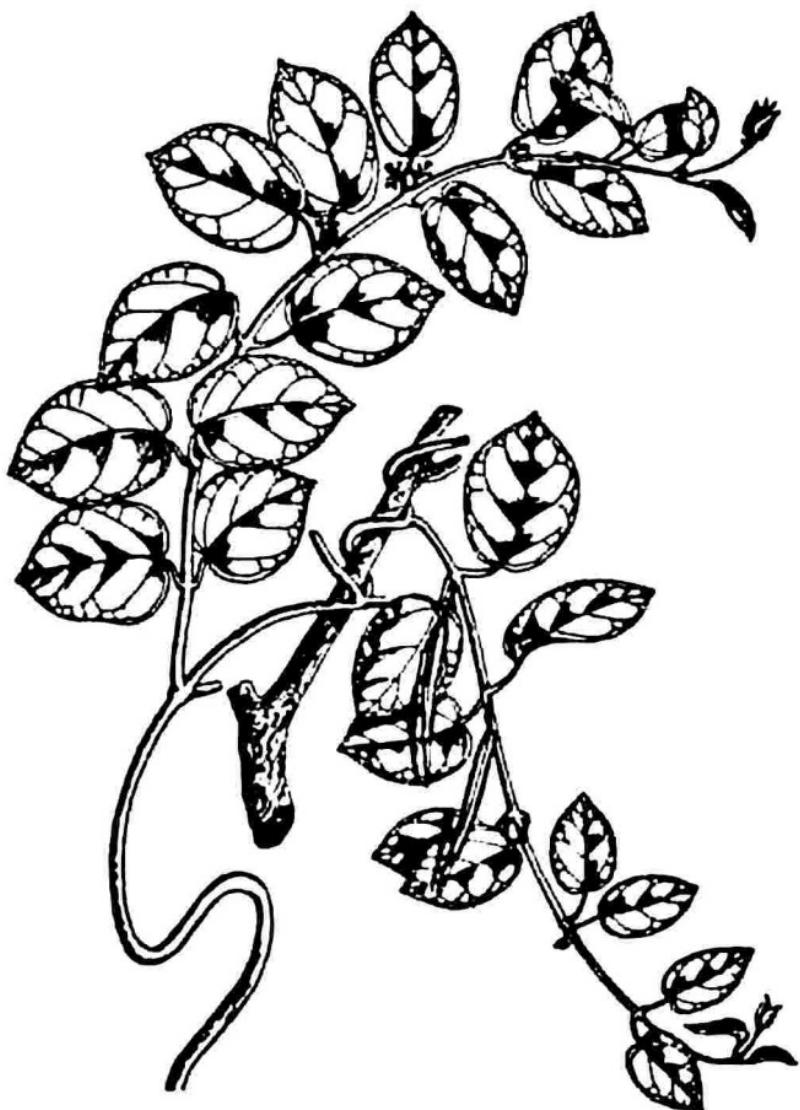
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Dolichandrone falcata Seem. (*Bignoniaceae*)

Sanskrit - Meshasringa

Malayalam - Neerpongalyam

Tamil - Kadalatti, Kaliyacca



Gymnema sylvestre

Meshasringi

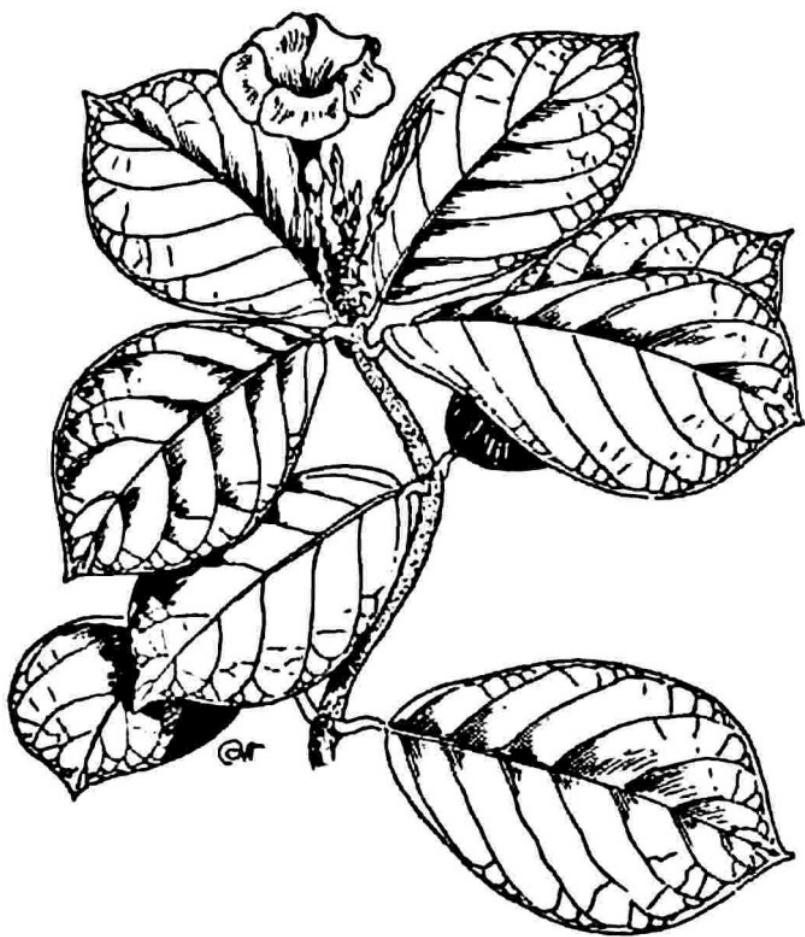
Gymnema sylvestre R. Br. (Asclepiadaceae)

- | | |
|-----------|--|
| Sanskrit | - Ajashringi, Avartini,
Medashrangi, Meshasringi,
Meshavalli, Putrashringi,
Tiktadughda, Vartika etc. |
| Malayalam | - Chakkarakkolli |
| Tamil | - Adigam, Amudupushpam,
Kogilam, Cherukurinja |

Aristolochia bracteolata Lam.

- | | |
|-----------|---------------------------------------|
| Sanskrit | - Kitamari, Dhumra-patra |
| Malayalam | - Adutinnappala |
| Tamil | - Attukottappalai,
Aduthinnappalai |

Synonyms indicate that *Meshastringi* is a latexiferous climber with fruits resembling the horns of a sheep. This description is applicable only to *gymnema* and not to *Aristolochia*.



Chonemorpha fragrans



Moorva

Chonemorpha macrophylla (Roxb.) G. Don
 (Apocynaceae)
(C. fragrans (Moon.) Alston)

Sanskrit – Moorva

Malayalam – Perumkurumba

According to the literature murva has latex, yields fibre, and roots, should be purgative and for that property it is called white 'trirut'. All these properties are shown by 'Chonemorpha'. So in Keralam it is used as 'moorva'.

Baplal find all these properties in a species of Marsdenia.

Marsdenia tenacissima W & A.
 (Asclepiadaceae)

According to Baplal, this is true 'moorva'. But this plant is not mentioned by Kirtikar and Basu nor is it cited in more recent publications.



Helicteres isora L. (Sterculiaceae)

- Sanskrit – Avartini, Mriga-shinga
 Malayalam – Valampiri
 Tamil – Valampiri

It is stated that this plant is used as 'moorva' in Punjab. But the plant has no latex, and the roots are not purgative. So it cannot be accepted as 'Moorva'.

Sansevieria zeylanica Roxb. (Liliaceae)

- Sanskrit – Suchimukhi moorva
 Tamil – Marul, Mottamanji

This plant also lacks latex and laxative property of roots. But it is used in Bengal.

Maerua arenaria Hook.f. & Thomson (Capparidaceae)

- Sanskrit – Piluparni moorva
 Tamil – Mulmurandai,
 Bhumichakkrai

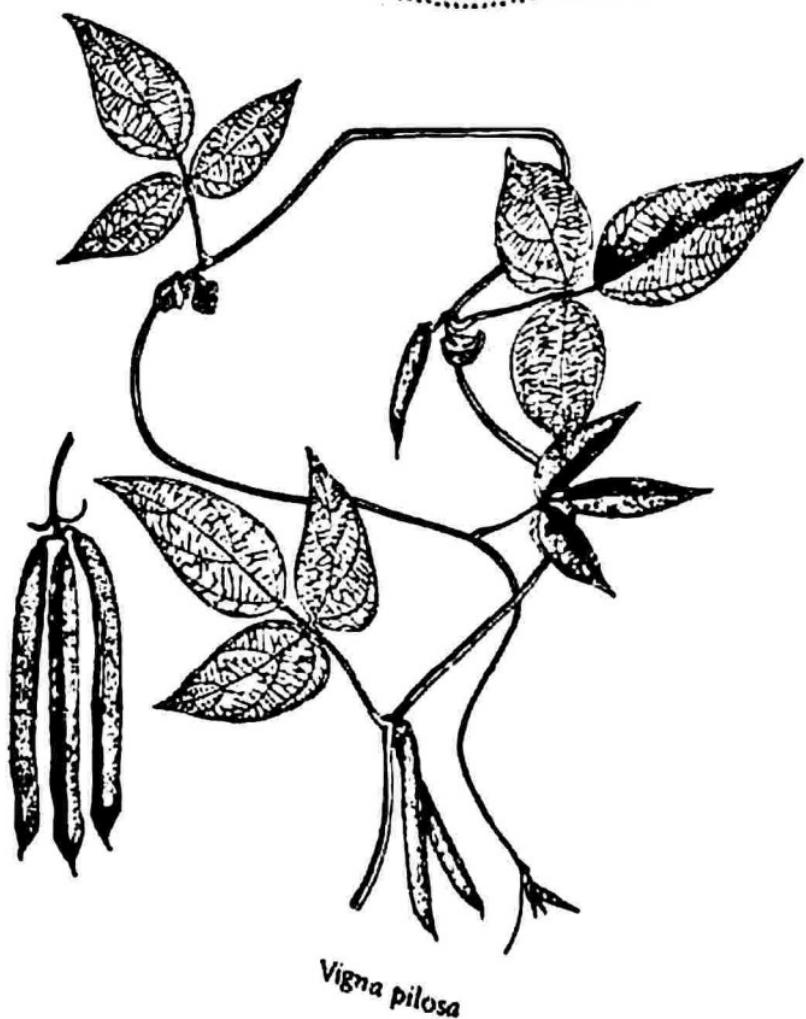
This plant also lacks latex and purgative property but is found in use in N.W. India.



Clematis triloba Heyne (Ranunculaceae)

Sanskrit - Moorva, Devashreni,
Dhanurmala, Gokarni,
Baghuparnika, Madhulika,
Morata, Piluparni,
Prithakaparni, etc

This is used as *moorva* in Maharashtra and Gujarat, but it is a latexless and fibreless plant. Qualitatively also, it is different from *Chonemorpha* and *Marsdenia*. So, its use as *moorva* is questionable.



Vigna pilosa



mudgaparni

Vigna trilobata (L.) Verdcourt (Papilionaceae)
(Phaseolus trilobatus (L.) Schreb.)

Sanskrit - Uugaparni, Aranyamudga,
 Shim biparni

Malayalam - Kattupayar,
 Kattucherupayar,
 Cheruvidukol

Tamil - Panippayar

This is the plant used in N. India as 'mudgaparni'.

Vigna pilosa Baker (Papilionaceae)
Phaseolus adenanthus G.F.W.Mey

These two plants are commonly used in Keralam, as
 'mudgaparni'. They may be treated as substitutes.



Orchis latifolia



Munjataka

Orchis latifolia L. (Orchidaceae)

Sanskrit - Munjataka, Salampamissi

Malayalam - Salamisri

Tamil - Salamisri

Genuine 'salamisri' is the tuber of this plant.

Eulophia campestris Wall. (Orchidaceae)

Sanskrit - Amrita, Pranada, Sudhamuli,
Virakanda

Eulophia nuda Tindl. (Orchidaceae)

Sanskrit - Balakanda, Grndhidala,
Malakanda, Panktikanda,
Kandalata etc.

The pseudobulbs of the above two plants are also sold as 'salamisri'. Because they are also ground orchids like *Orchis* they may be similar in properties too. So they may be considered acceptable substitutes.



Curculigo archioides



Musali

Curculigo orchoides Gaertn. (Hypoxidaceae)

Sanskrit — Arshoghni, Bhutali, Karjuri,
Musali, Talamuli, Talapatrika

Malayalam — Nilappana

Tamil — Nilappana

This plant is widely accepted as genuine source of 'musali'. In N. India two forms of 'musali' are recognized which are 'kali musali' and 'safed musali'. Of these 'kali musali' is equated with *Curculigo orchoides*. Two plants are recognized as 'safed musali'.

Asparagus adscendens Roxb. (Liliaceae)

Tuberous root of this plant is used as drug. In medicinal properties it is different from 'kalimusali'.

Chlorophytum arundinaceum Baker (Liliaceae)

In this plant also officinal part is tuberous root. It is mainly used as tonic. It is evident that safed musali cannot be used in the place of 'kali musali' (*Curculigo*).

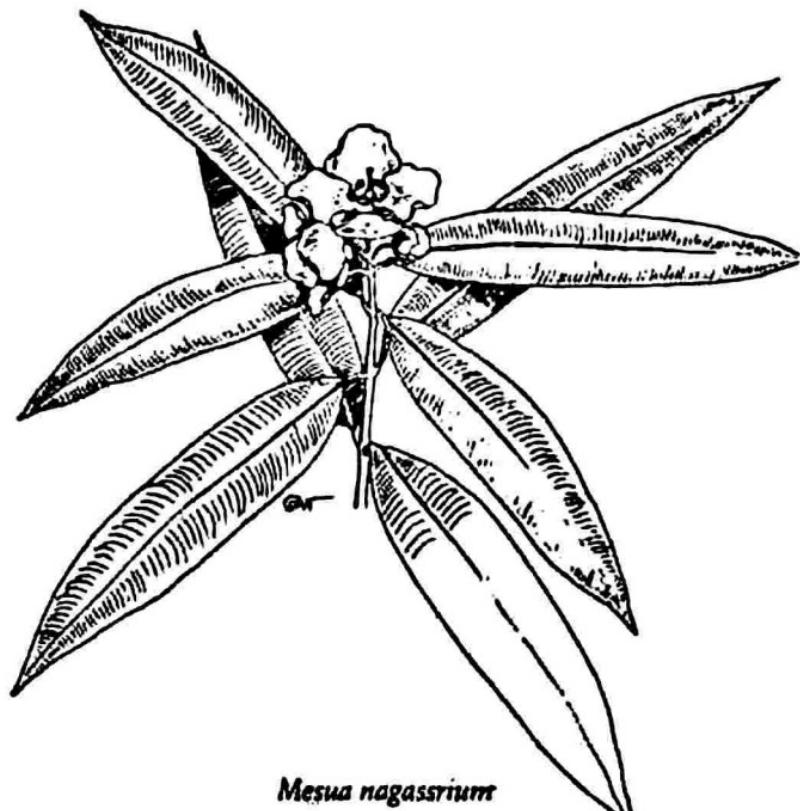


nagakesara

Mesua ferrea L. (Guttiferae) (Clusiaceae)

Sanskrit - Nagakesara, Punnagakesara,
Naga

Malayalam - Nanga, Peri, Veluthapala,
Vainavu



Mesua nagassrium

Tamil - Nangu, Nangal, Irul,
Nagachampakam

There is no controversy about the source plant. of this drug. However, at least three adulterants are found for this in the market. While genuine drug consists of stamens, other parts are being used in the case of these adulterants.

Ochrocarpus longifolius B. & H. (Guttiferae)

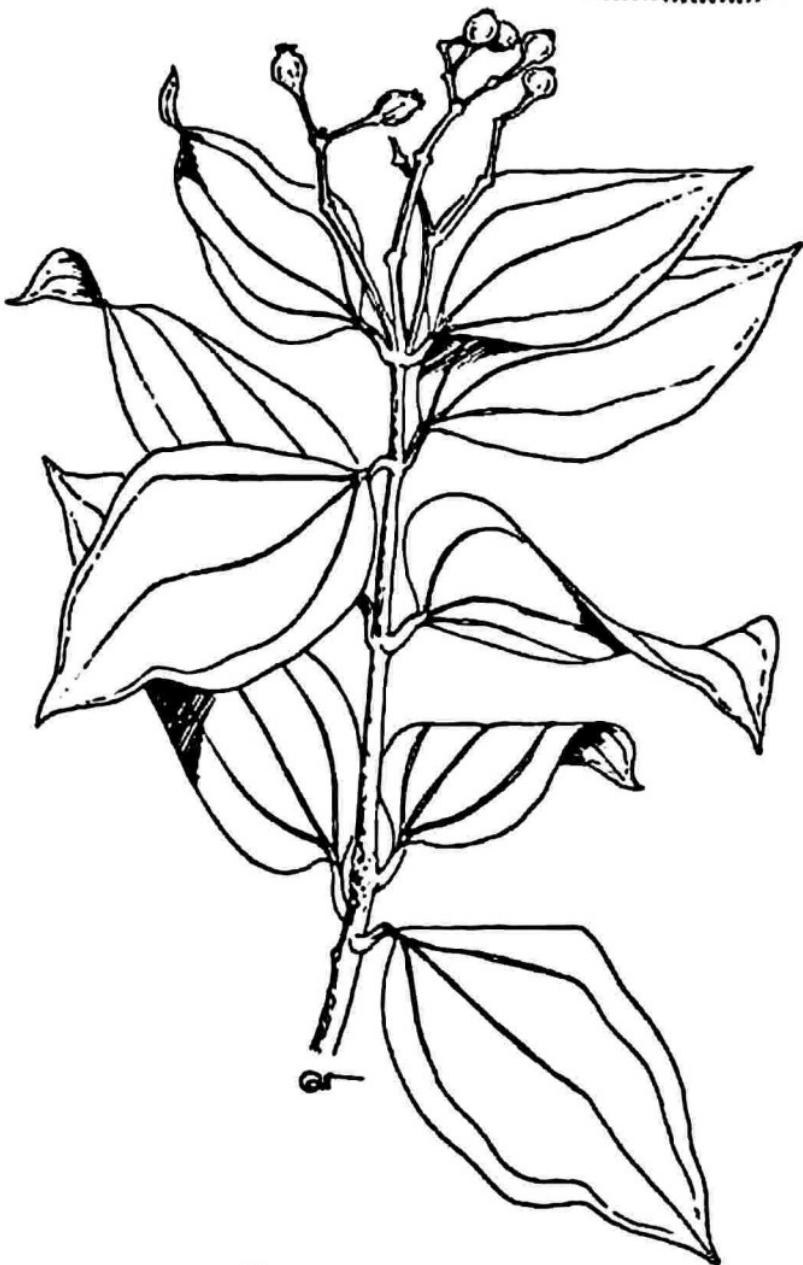
Sanskrit	- Nagakeshara, Keshara, Kamboge, Punnaga, Nagapushpa, Pandunaga etc.
Malayalam	- Soorampunna
Tamil	- Surapunnai, Surapunnagam

In this case, whole flower buds are sold as the drug.

Cinnamomum tamala Nees. (Lauraceae)

Sanskrit	- Ankusha, Gomeda, Patra, Suras, Tamalaka, Tamilapatra, Tejapatra etc.
Malayalam	- Pachila
Tamil	- Talisapattiri

Material sold in the market happens to be very immature fruit of this plant. Leaf of the same plant is also used as drug under another name - talisapatra.



Cinnamomum tamala

Dillenia pentagyna L. (Dilleniaceae)

Sanskrit — Bhavya

Malayalam — Punna, Velappunna

Tamil — Akku, Uvay, Uvattekku

Tender fruits are used.

In the case of Ochroma carpus, there is some justification in using it; because it belongs to the same family as Mesua. Moreover the part used being flower bud, it will contain stamens also. So it may be treated as a substitute. For the other two plants even such a status cannot be given.



nandi vrksa

Ficus retusa L. (Moraceae)

Sanskrit — Kuni, Kuberaka, Kantalaka,
Mandirriksha, Plakshani

Malayalam — Ittiyal, Kallitti

Tamil — Itti, Kallithi, Malaiyitti

According to Baplat, this tree is to be taken as nandi uriksha. In Keralam, it is known as plaksha.



Cedrela toona Roxb. (Meliaceae)

- Sanskrit - Nandivriksha, Tunna
 Malayalam - Malaveppu
 Tamil - Santhanavembu, Tunumaram

In books like *Amarakosam*, *Rajanighandu* and *Dhanvanthiri nighandu*, this is genuine nandivriksha.

Ervatania coronaria (R. Br.) stapf. (Apocynaceae)

- Sanskrit - Nandivriksha
 Malayalam - Nantiaryattam, Kuttanpala
 Tamil - Nandiavarvattam,
 Kuruduppallai

This is believed to be an exotic plant, though it is very common now, through cultivation. Its inclusion in ancient texts as a medicinal plant is doubtful. Moreover, its root and flowers alone are said to be medicinal and not the bark.

Thespesia populnea Soland (Malvaceae)

- Sanskrit - Gardha-bhanda, Kamandalu,
 Kapichuta, Kuberaksha,
 Nandi, Parisha, etc
 Malayalam - Poovarasu, Poopparuthi,
 Kallal
 Tamil - Pooovarasu, Poopparuthi,
 Cheelanti, Kallal

The synonym nandi may be the reason to consider this as *nandivriksha*. The bark is used in treating cutaneous afflictions and dysentery. Perhaps, this can be used as an acceptable substitute for *Cedrela toona*.

Gmelina arborea Roxb. (Verbenaceae)

Sanskrit	- Gambhari, Kasmari, Gandhari, Shriparni, Bhadraparni, Bhadra
Malayalam	- Kumbil, Kumizh
Tamil	- Perumkumbil, Umithekku, Kumadi

The important officinal part of this plant is the root and is a constituent of *dasamoola*. The bark is not reported to be of much medicinal use.

The synonym *plaksha* given to *Ficus retusa* is not found for *Cedrela toona*. According to *nighandus*, the latter is named *nandivriksha*. So it is reasonable to believe that *plaksha* and *nandivriksha* are two different plants, and *Cedrela toona* is *nandivriksha*.



Vitex negundo



nirgundi

Vitex negundo Linn. (Verbenaceae)

Sanskrit — Indrani, Nirgundi,
Nilanirgundi, Surasa,
Svetasurasa, Shephali,
Sinduvara, etc

Malayalam — Nochi, Vellanochi, Vennochi

Tamil — Nirkundi, Nochi,
Vellainochi, Vennochi

There are two varieties of this plant, as is evident from the synonyms 'Svetasurasa' (white) and 'Nilanirgundi' (purplish).

Of the two, the variety *Purpurescens* has a violet colour on the lower side of the leaves and the young stem. The flowers are also dark violet in colour. The intensity of colour is, however, very variable even in this variety. Misled by the colour, some physicians in Keralam call this 'karinochi' (dark nochi) and use only this as nirgundi. Taxonomically, the white variety — mistakenly called 'vellanochi' locally — is also *Vitex negundo*. So, if *Vitex negundo* is equated with nirgundi, both the white and purple varieties can be used.

In many authoritative publications, the name karinochi is applied to another species of the genus — *Vitex trifolia*, which is not as common as *V. negundo*. Physicians, however, do not use it medicinally.



Vitex trifolia Linn.

- Sanskrit - Indranika, Indrasurasa,
Jalanirgundi, Krishna
nirgundi, Nilanirgundi,
Nilika, Surasa, Svetasurasa,
Sephalika, Svetapushpa, etc
- Malayalam - Nochi, Neernochi, Karinochi
- Tamil - Nochi, Serunochi,
Neernochi, Karunochi

With regard to medicinal properties, this species is reported to be more potent than *V. negundo*. It has anti-bacterial and anti-cancerous properties. The above two species can be easily distinguished.

V. negundo - Most of the leaves have five leaflets. The lowest two are the smallest and nearly sessile. The other three have fairly long stalks. The leaflets are long, narrow and pointed at tip.

V. trifolia - The leaves have only three leaflets and they do not have any stalks. They are shorter and broader than in the others and not so sharply pointed at the apex. The leaflets are dark green above and white tomentose on the lower surface.

Why this more potent species is not accepted as *nirgundi* is a question that needs an answer. Perhaps people were misled by the colour and wrongly identified the variety *purpureascens* of *vitex negundo* with *karinochi*, and this error was passed down through generations.



padmacharini

***Nervilia aragoana* Gaud. (Orchidaceae)**

Sanskrit — Padmacharini

Malayalam — Orilathamara, Nilathamara,
Kalthamara

Tamil — Orilathamaramai

Contemporary authors have concluded that the genuine drug plant is this species. The official part is the underground rhizome, which is vertical and tuberous. In this plant, the leaf is lifted upon a long petiole.

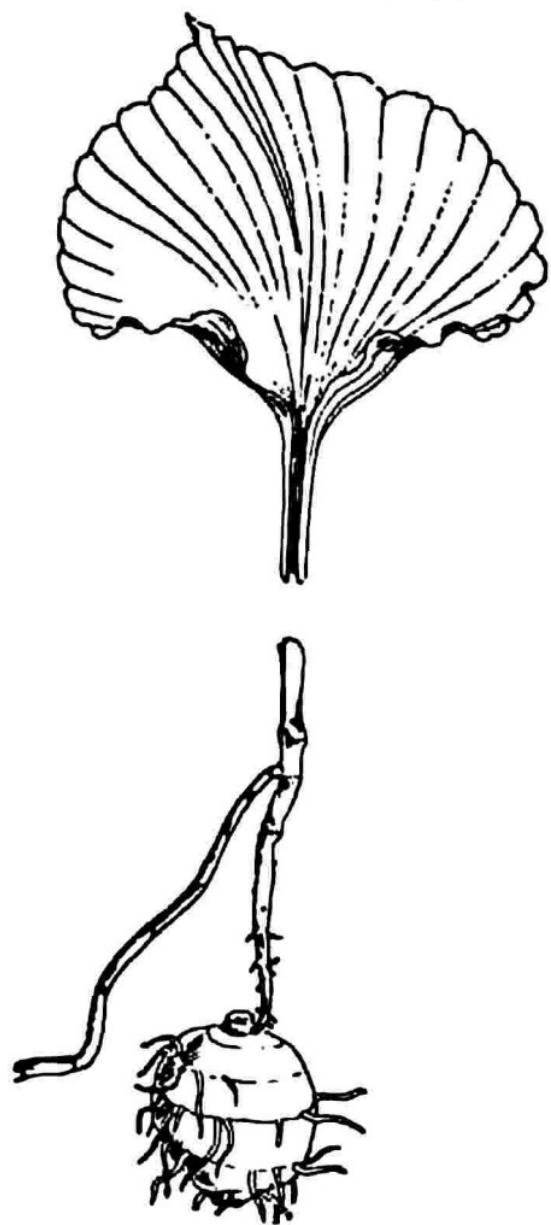
***Nervilia carinata* schltr.**

This differs from the first, mainly due to the absence of a long petiole. It is also used in medicines.

***Nervilia plicata* schltr.**

This is a still smaller species, with the leaves being more flat and lying on the ground. The leaves have blotches of purple colour. They resemble the leaves of the water lily (*Nymphaea*) more than those of the other two species.

Being closely related species of the same genus, taking all these as the authentic source of the drug is justifiable.



Nerilia aragoana

Habenaria diphylla Dalz. (Orchidaceae)

This ground orchid, though having two leaves near the ground level, is also regarded as 'Orilathamara'. It also has a fleshy tuber in the soil, but it is a stem tuber and not a rhizome, as in the case of *Nervilia*. Perhaps, its properties may be similar to those of *Nervilia*.

Habenaria rotundifolia DC.

Sanskrit — Agniparni, Vishnuparni,
Tanviv

Malayalam — Orilathamara

The people in Karnataka consider this species as orilathamara. Its leaves are circular and more like those of the waterlily.

Hybanthus suffruticosus (L.) Baillon (Violaceae), (*Ionidium suffruticosum* (Ging))

Sanskrit — Padmacharini, Padmavati,
Ekapatri, Purusharatnam.
Atichara, etc

Malayalam — Orillathamara

Tamil — Orilathamarai

This is a small, perennial dicot herb with numerous, small leaves. Thus, equating it with a single leaved plant — Orilathamara — is debatable.



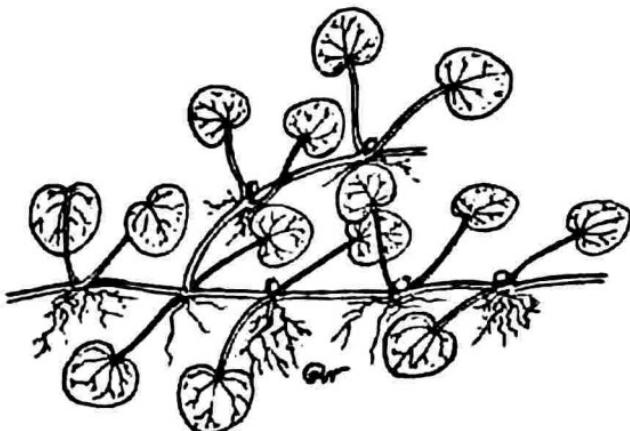
The flowers of this plant, apparently, have only a single conspicuous petal. So, it is possible that originally it was called *orithalthamarai* – a name indicating the single petal of the flower, which eventually got corrupted to *orilathamarai*.

The whole plant – root and flowers – is used in treating several diseases. In South India, it is largely used as *orilathamara*; but the name '*Ekaparni*' is certainly not applicable to this.

Geophila reniformis D.Don.

Malayalam – Karimuthil, Karinkutavan,
Kattukutavan

It is reported that some physicians equate this plant with *orilathamara*, but its properties are more like those of Ipecac.



Geophila reniformis

152 Controversial Drug Plants



Oldeulaudia corymbosa



parpata

Half a dozen plants are being used as 'Parpata' in different parts of India. It is very difficult to say which is the genuine plant, which are acceptable as substitutes and which are spurious.

Oldeulaudia corymbosa L. (Rubiaceae)

Sanskrit	- Parpata, Kshetraparpata
Malayalam	- Parpatakappullu
Tamil	- Parpadakam

Many physicians in Keralam accept this as Parpada.

Oldenlandia umbellata L. (Rubiaceae)

Malayalam	- Chayaver
Tamil	- Chiruver, Sayaver, Imburaver

This species is also used as 'Parpata' by some physicians in Keralam, though there is little justification. It is not found referred to in books on medicinal plants. So it may be treated as a spurious drug.

Mollugo oppositifolia L. (Ficoideae) (Aizoaceae)

Sanskrit	- Grishma, Sundaraka, Phanija
Malayalam	- Kaipachira

 Tamil - Kachantarai, Poornelai

Some physicians in Keralam are using this species as 'Parpadakam', obviously without justification.

Mollugo cerviana Ser. (Aizoaceae)

Malayalam - Parpatakappullu

Tamil - Parpatakam

In many parts of South India except Keralam, this is used as Parpadakam.

Mollugo nudicaulis Lam. (Aizoaceae)

Tamil - Parpadagam

Around Madras, this is taken as Parapadagam.

Mollugo pentaphylla L. (Aizoaceae)

Malayalam - Parpadakappullu

Tamil - Parpadakam

In Keralam this is also used as Parpadagam.

Fumaria parviflora Lam. (Fumariaceae)

Sanskrit - Araka, Charaka, Katupatra,
Ksheparpata, Parpata,
Parpataka, Pittari, Trishnari,
Varatikta, Tikta

Tamil - Tusa

This seems to be the genuine drug 'Parapadagam'. But this plant is mainly of North India and rare in Keralam. What are used in Keralam viz. Oldenlandia corymbosa, Mollugo pentaphylla and M. oppositifolia are only acceptable substitutes. So is Mollugo cerviana used elsewhere in South India.

Polycarpaea corymbosa Lam. (Caryophyllaceae)

Sanskrit	- Okharadi, Bhisatta, Tadagamritikodbhava
Tamil	- Nilaisedachi

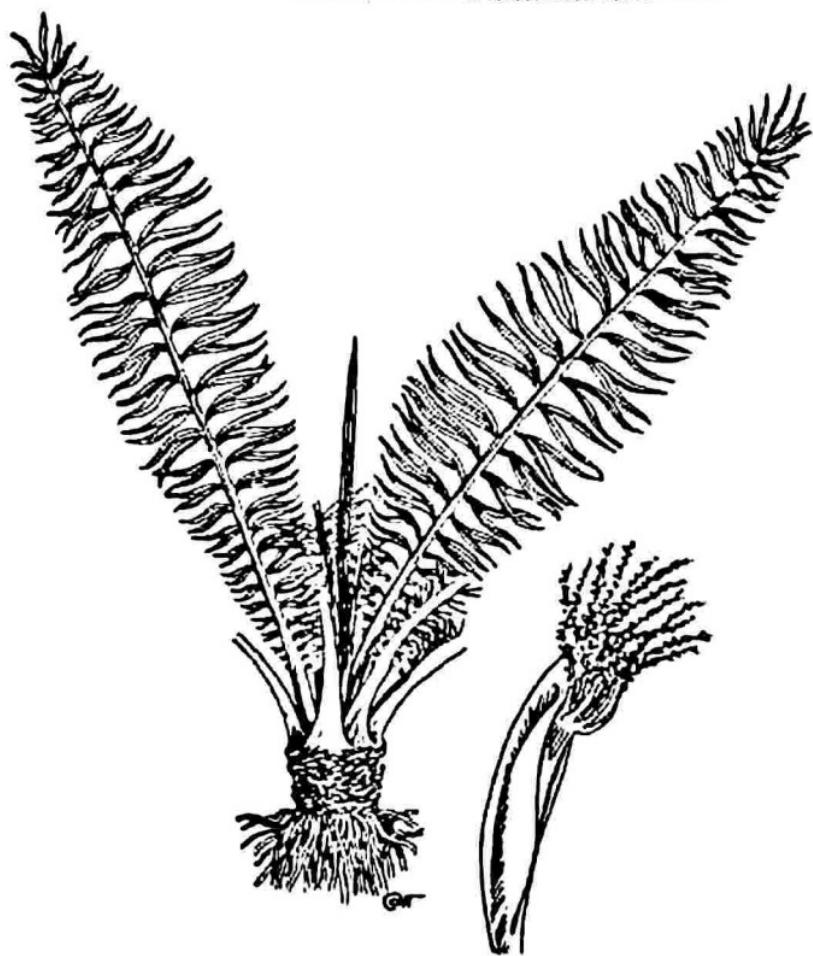
This is found and used as 'Parpata' in U.P. and nearby places.

Rungia repens Nees. (Acanthaceae)

Sanskrit	- Parpatha
Tamil	- Kodagasalai

In Gujarat this is used as 'Parpata'. But in spite of the Sanskrit name given to the plant, qualitatively it is different from the other plants recognized as 'Parpata'. It seems to be a case of wrong identification.

Perhaps Fumaria parviflora is the genuine drug. As it is not readily available in South India, some substitutes have been found which are Mollugo cerviana, M. Pentaphylla and Oldenlandia corymbosa. Other plants in use may be treated as spurious.



Phoenix pusilla



parushakam

Grewia asiatica L. (Tiliaceae)

Sanskrit — Parushakam, Parusham,
Alpasti, Parapara, Hintalam,
Giri peelu

Malayalam — Parushakamaram, Eenthal

In many of the ancient books like Bhavaprakasanighandu, Dravia gunavijnanam and Brhattrayi, this is the plant mentioned as parushakam. But in Keralam it is not used as the source of 'parushakam'.

Phoenix pusilla Gaertn. (Arecaceae) (Palmae)

Malayalam — Chitteenthal
Tamil — Ithi, Sagi, Sirueenthalu,
Chitteenthalu

This is a monocot plant. No Sanskrit name is found for this plant in modern texts. However this is the plant used as 'parushakam' by most physicians in Keralam. Taxonomically, Grewia which is a Dicot is very distant from Phoenix which is a Monocot.

Perhaps the vernacular name 'eenthil' is mistaken for 'eenthha' and 'eenthal' and the plant known by the latter names is interpreted as 'parushakam'. Which of the two is genuine is to be decided.



Rotula aquatica



pashanabhesha

This is a highly controversial drug. At least eight different plants are equated with *pashanabhesha* because of their alleged ability to dissolve renal and vesical calculi.

Rotula aquatica Lour. (Boraginaceae)

Sanskrit	- <i>Pashanabhesha</i>
Malayalam	- <i>Kalloorvanji</i>
Tamil	- <i>Sippuneringil</i>

In South India, this is the plant widely accepted as *pashanabhesha*.

Bergenia ligulata (Wall.) Engl. (Saxifragaceae)

Sanskrit	- <i>Pashanabhesha, Vatapatri</i>
Malayalam	- <i>Aalilakkalloorvanchi</i>

In North India, this plant is accepted as *pashanabhesha*. This is a case of botanically different plants being used as same drug, according to their availability.

It is reported, however, that for treating urinary disorders *Rotula* is more effective than *Bergenia*.

Aerva lanata juss. (Amaranthaceae)

- Sanskrit - Bhadra, Asmabhed
Malayalam - Cheroola, Cherupoola,
Balipushpam
Tamil - Sirupulai

In the absence of *Bergenia*, this plant is recommended for treating vesical calculi.

Homonoia riparia Lour. (Euphorbiaceae)

- Sanskrit - Jalaretasa, Vetasa.
Pashanabhed
Malayalam - Aattuvanchi, Neervanchi.
Kattalari
Tamil - Kattarali

This plant is also found useful in treating vesical calculi. So, it may be considered as an acceptable substitute.

Coleus aromaticus Benth. (Lamiaceae)

- Sanskrit - Pashanabhed
Malayalam - Panikkoorka, Kanakkoorka

The Sanskrit name indicates that the plant can be used to treat *asmari*, though it is commonly used for other purposes.

Kalanchoe pinnata Linn. (Crassulaceae)

- Sanskrit - Asthibhaksha, Paranbija



Malayalam – Ilamulachi, Murikoodi,
Ilamarunnu

Ammania baccifera L. (Lythraceae)

Sanskrit – Kshetrabhusha,
Kshetrevashini, Kuranti,
Sukaranda

Malayalam – Kallurvanji
Tamil – Kalluruvi, Neerumeluerippu

There are no authenticated records about the capacity of this plant in dissolving calculi, although it is claimed to have this property.

Pouzolzia zeylanica (L) Benn. (Urticaceae)

Malayalam – Kallurukki

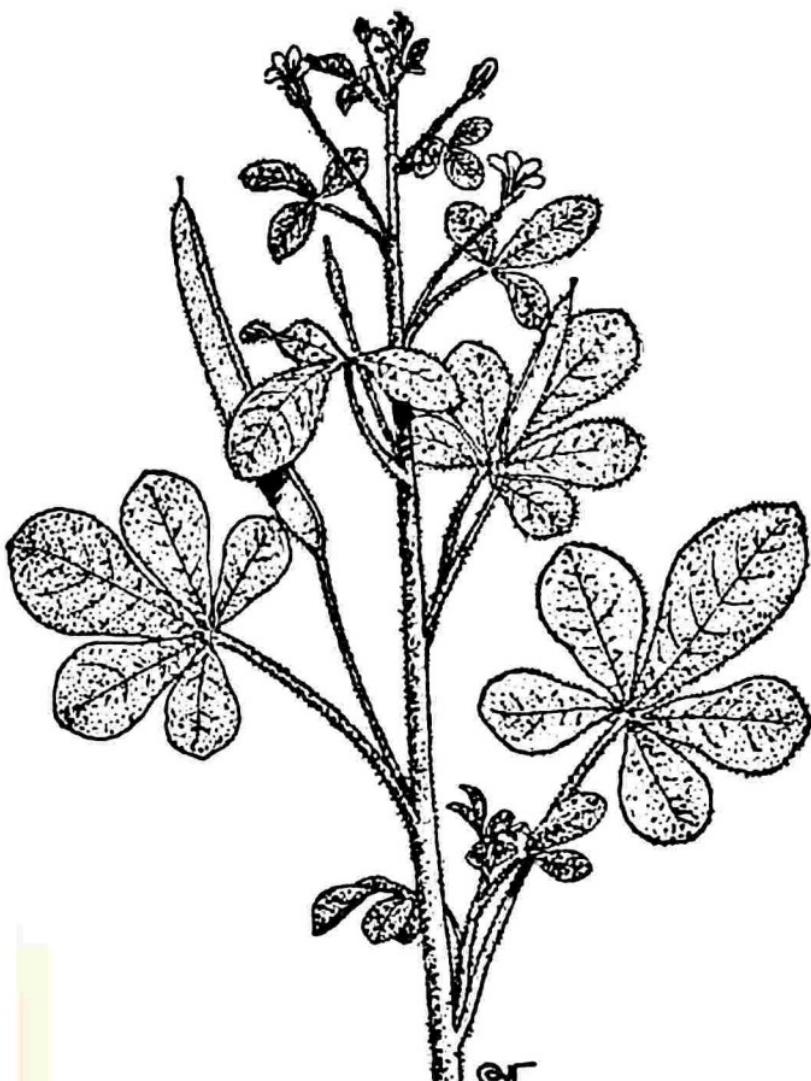
For this plant too, there are no authentic records about its ability to dissolve renal and vesical calculi, but the vernacular name is indicative of that property.

Scoparia dulcis (Scrophulariaceae)

Malayalam – Meenangani, Rishikalpam

It is claimed that this plant, if used as single drug, is capable of removing renal and vesical calculi. However, this claim too lacks authoritative record.

Many physicians in Keralam are of the opinion that Rotula must be used as pashanabhedhi as far as possible. If it is not available, Aerva may be used as an effective substitute.



Cleome viscosa



pasugandha

Cleome viscosa L. (Capparidaceae)

Sanskrit - Pasugancha, Adityabhakta,
 Arkakanta

Malayalam - Aryavela, Nayvela,
 Aiunarivela, Vela

Tamil - Naivelai, Naikkaduku,
 Velaikkeerai

Gynandropsis gynandra (L.) Briq.
(Capparidaceae)

Sanskrit - Suryavarta, Arkapushpika

Malayalam - Karavela, Taivela

Tamil - Taivelai, Velai, Kattukaduku

This is more or less similar to the above in properties. So
it is used as a substitute.



Trichosanthes lobata



patola

Trichosanthes lobata Roxb. (Cucurbitaceae)
(*T. cucumerina* L.)

Sanskrit - Patola, Tiktapatola,
Rajapatola, Panduphala,
Amritaphala, Kasabhanjana,
Kulaja, Katuphala, etc.

Malayalam - Kattupadavalam,
Kaippaṇpadavalam,
Peyppadolam

Tamil - Peypudal, Kattupayupal,
Kattupayi

All over Kerala this is the plant used as 'patolam'. But there are also some other species used as 'patolam' in other places.

Trichosanthes dioica L. (Cucurbitaceae)

Trichosanthes nervifolia L. (Cucurbitaceae)

Trichosanthes cordata Roxb. (Cucurbitaceae)

Trichosanthes incisa L. (Cucurbitaceae)

All the above four species may be treated as substitutes.



Amomum subulatum



perelam

Amomum subulatum Roxb. (Zingiberaceae)

Sanskrit — Aindri, Bahula, Bala,
Balavati, Divyagandha, Ela,
Indrani, Nishkuti, Triputa,
Maleya etc.

Malayalam — Perelam, Chandrabala

Tamil — Perelam, Periyayelam,
Kattulam

This is popularly accepted as Perelam.

Amomum aromatium Roxb. (Zingiberaceae)

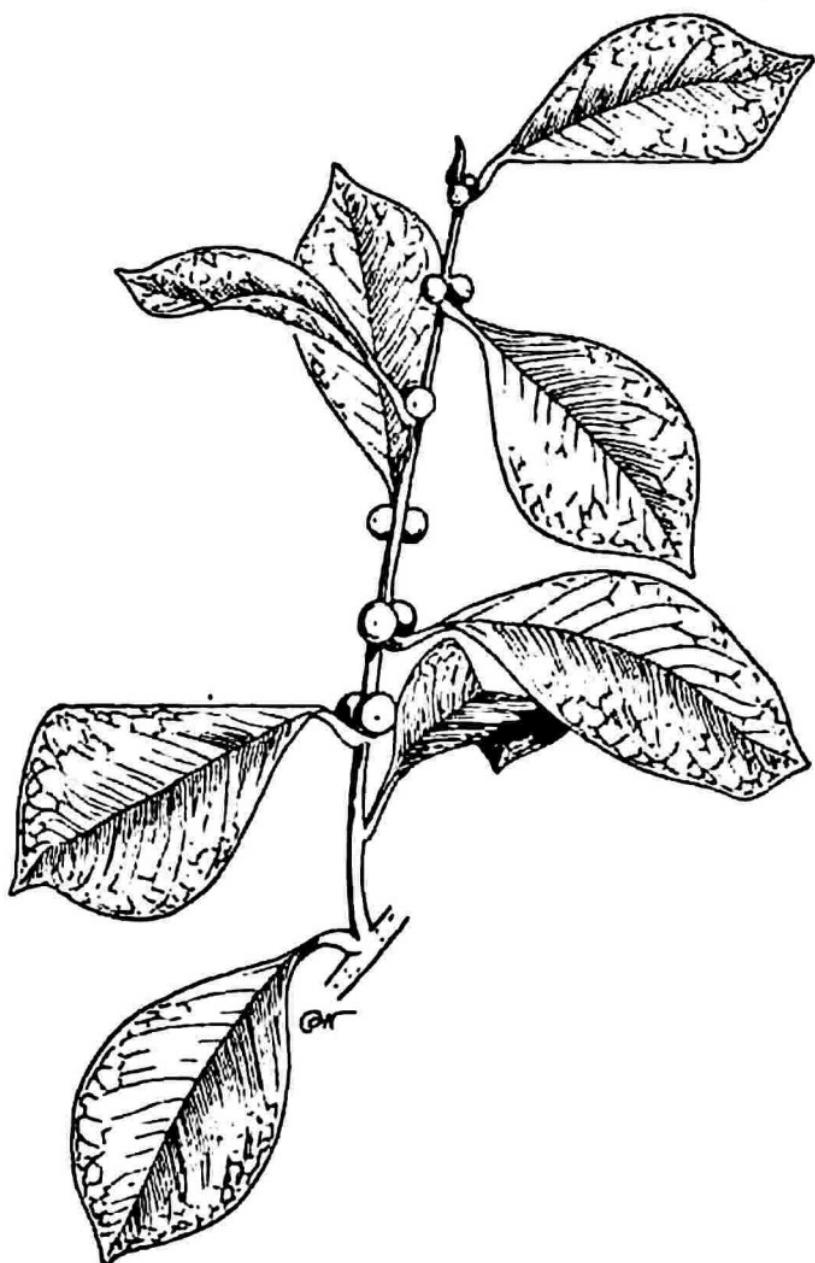
No Sanskrit or vernacular names for this except in Bengali
and Marathi and Hindi.

Medicinal properties of this plant is the same as those
of the previous species.

Peucedanum grande C.B.C. (Umbelliferae)

No Sanskrit or South Indian names could be found for
this plant.

In some places this is used as 'Perelam'. But unlike the
first two, this is a dicot plant. Official part is not the
seeds as in cardamoms but the entire fruit. Whether it is
qualitatively similar to 'Perelam' is doubtful and so will
have to be considered an adulterant.



Ficus microcarpa



plaksha

This is a highly controversial drug. In modern books on medicinal plants, the name 'plaksha' is given to several species of the genus *Ficus*, such as *Ficus talbotii* King, *F. Tsiela Roxb.*, *F. Arnottiana* Miq., *F. lacor* Ham and *F. gibbosa*. All these species bear the synonym plaksha. To make matters worse, the synonyms in the vernacular – *itti*, *ittiyal* and *kallitti* – are indiscriminately applied to all of the above mentioned plants. According to a very recent study, yet another species is identified with plaksha.

Ficus microcarpa L.S. (Moraceae) (*F. retusa* L.)

Sanskrit – Kuni, Kantalaka, Kshudra,
Kuberaka, Tunna,
Mandissiksha

Malayalam – Ittiyal, Kallatti

Tamil – Ichi, Kallichi, Malayitchi,
Pon-ichi

Though the name *plaksha* is not given to this as a synonym, many physicians in Keralam consider this as the genuine drug plant.

The first five plants have *plaksha* as one of their synonyms. The names in Tamil and Malayalam are indiscriminately applied. So, the present situation is that all these plants are used as the source of *plaksha*, depending upon the local availability.



Sida veronicaefolia Lam. (Malvaceae)

Sanskrit – Bhumibala, Nagabala

Malayalam – Vallikkurunthotti

Tamil – Palampasi

Interpreters of Dhanwanthirinighandu and Draviagunavijnan are citing this plant as 'prasarini'.

Paederia foetida L. (Rubiaceae)

Sanskrit – Prasarini, Pratanika, Bala,
Rajabala, Rajapatni etc.

Malayalam – Prasarini, Talaneeli

This plant is cited as 'prasarini' in books like 'Indian Medicinal Plants', 'Indian Materia Medica' and 'Useful Plants of India'. It is not commonly found in Keralam and for that reason not used.

Merremia trididata (L.) Hallier f. ssp.
trididata (Convolvulaceae)

Sanskrit – Prasarani

Malayalam – Prasarini, Talaneeli

Tamil – Mudiyakuntal, Tirippanpul,
Savolikkodi

Merremia tridentata (L.) Hallier f. ssp. *hastata*
 (Desr.) Ooststr.

Sanskrit — Prasarani

Malayalam — Cheruvayera

Tamil — Talaneeli

All over Keralam both sub-species of *Merremia* are used as 'prasarini'. If they have the properties of the 'prasarani' mentioned in ancient texts, they can be accepted as substitute of *Paedaria* which is not readily available in Keralam.

Biophytum reinwardtii (Oxalidaceae)

Even this plant is taken as 'prasarini' by a few: so which plant is real 'prasarini' is still a question without definite answer.



Callicarpa macrophylla



priyangu

Callicarpa macrophylla Vahl. (Verbenaceae)

Sanskrit — Priyangu, Phalini

Malayalam — Njazhal, Chimpompil

Tamil — Njazhal

This plant is regarded as the scourge of 'priyangu' in many of the ancient texts. Modern interpreters also hold that view. In Sanskrit literature, there is reference to this plant as "priyangu kalika syama", indicative of the pale purple colour of the flowers. This plant also has flowers of the same colour.

Aglaia odoratissima Bl. (Meliaceae)
(*A. roxburghiana* (W. & A.) Miq.)

Sanskrit — Priyangu, Priyanka, Phalini,
Shyama, Krishnapushpi,
Parnabhedini, Anganapriya,
etc.

Malayalam — Punyava, Sempuli

Tamil — Sokkalai, Kannikkombu

The synonyms *krishnapushpi* and *shyama* are not applicable to this plant, because its flowers are not of that colour. So, equating *priyangu* with *Aglaia* is questionable.



Probably those who first fixed the botanical identity of *priyangu* first decided that *priyangu* is *Aglaia*, for reasons of their own. Once *Aglaia* is accepted as *priyangu*, all the synonyms of that plant are applied to the former.

Myristica fragrans Houtt. (Myristicaceae)

Sanskrit — Jativrksa, Jati, Jatiphala, etc

Malayalam — Jati

Tamil — Adipalam, Kosam, Sadikkai,
Sadi sivagaram

Market samples of *priyangu* collected from many places, were found to be the dried male flowers of this tree. While the status of *Aglaia* is yet to be decided, this can be considered a spurious drug. Taxonomically, it is far removed from both *Aglaia* and *Callicarpa*.



prsniparni

Desmodium gangeticum (L.) DC.
(Papilionaceae)

Sanskrit - Prsniparni, Prthakparni,
Shaliparni, Triparni,
Vataghni, Vidari,
Vidarigandha, etc

Malayalam - Orila, Pulladi

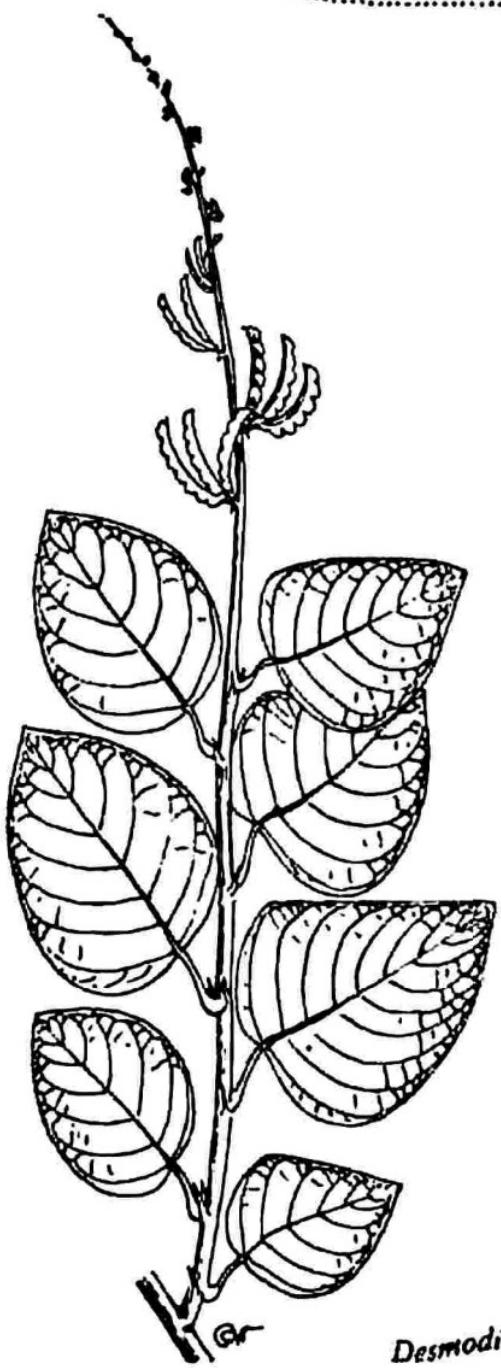
Tamil - Pulladi

This is the plant generally accepted in Keralam as *Orila*, on the basis of the single leaflet. In North India, this plant is widely known as 'Shalaparni'. Among the synonyms, are found the words: *triparni*, *vidari* and *vidarigandha*. This sometimes causes confusion.

Desmodium lasiocarpum DC. (Papilionaceae)
(*D. latifolium* DC.)

Tamil - Chimbattai

As the leaves of this plant are unifoliate, some dealers also supply this species as *orila*.



Desmodium gangeticum

 Uraria *lagopoides* DC. (Papilionaceae)

Sanskrit — Prsniparni, Chitraparni,
Simhapuchhi

Malayalam — Orila

Uraria *picta* Desv. (Papilionaceae)

Sanskrit — Chitraparni, Pristhiparni
Tamil — Sithirappaladai

Uraria normally has trifoliate leaves. Therefore, it cannot be called orila. However, the synonym *tripami* being given to *D. gangeticum* is causing doubts, because that is also a synonym of *salaparni*, locally known as 'movila'. Anyway, *D. gangeticum* is the plant popularly accepted as orila in Keralam.

— *Desmodium lasiocarpum* DC. is also a species with unifoliate leaves. It is more easily obtained from the forests and is collected as orila. Whether it is to be considered as a substitute or as an adulterant is yet to be determined.

Prsniparni and *salaparni* are generally used together in most of the formulations. So, the twist in nomenclature is of little significance.



punarnava

Ancient texts mention two forms of the drug – raka-punarnava and svetapunarnava. They are stated to have different properties. Red and white flowered species are found for the genus *Boerhaavia* which are equated with the two forms of 'punarnava'.

Boerhaavia diffusa L. (Nyctaginaceae)

Sanskrit	– Punarnava, Lohita, Nava, Nilapunarnava, Nilavarshabhu, Kaktapunarnava etc.
Malayalam	– Thazhutama
Tamil	– Mukurattai

This is the red-flowered form of 'punarnava'. In Keralam the distinction of red and white-flowered forms is usually ignored and this plant is used for both.

Boerhaavia erecta L. (Nyctaginaceae)

Commicarpus verticillatus (Poir.) Standl.
(*Boerhaavia verticillata* Poir.)
(Nyctaginaceae)

Both the above two species are white-flowered and all used as 'svetpunarnava'.



Trianthema portulacastrum L. (Aizeaceae)

Sanskrit	- Svetapunarnava. Swtamula. Varshangi. Varshabhu etc.
Tamil	- Shavalai, Sharunnai

Many physicians believe this to be a different drug-plant and do not equate it with 'punarnava'. However it is sometimes used as a substitute.



Boerhaavia diffusa



Inula racemosa



pushkara moolam

Inula racemosa Hook. f. (Compositae)

Sanskrit - Pushkaram

Malayalam - Puskaramoolam

Tamil - Pushkaramoolam

Most physicians accept the root of this plant as Puskaramoolam. The Sanskrit name Pushkaram is also the synonym of water lotus and *Sassurea lapa*. The result is that the root of this plant is also equated with *Kusht* or *Kollam*, which is *Sassurea lappa*; the lotus being called pushkaram, some physicians are using the rhizome of *Nelumbo nucifera* (lotus).

Nelumbo nucifera gaertn. (Nymphaeaceae)

Sanskrit - Pushkaram, Ambujam,
Neerajam, etc

Malayalam - Tamara

Tamil - Ambal, Tamarai,
Sivapputhamarai

There is no recognizable anatomical difference between root and rhizome in this plant. As the rhizome also lies buried in the soil, it is taken as part of the root of this plant. Whether this rhizome of lotus will be quantitatively equivalent to the root of *Inula* is yet to be decided.



Iris germanica L. (Iridaceae)

Sanskrit - Padmapushkara

Malayalam - Pushkaramoolam

The word 'Padma' in Sanskrit is a synonym of lotus, and it is used as adjective. The name qualified by such a synonym of lotus cannot be another synonym of the same plant, as such a usage will be meaningless. So, we may infer that the word *Pushkara* is not indicative of lotus, but something else. And, for the same reason, the rhizome of the lotus cannot be equated with *pushkaramoolam*.

Costus speciosus Sm. (Zingiberaceae)

Sanskrit - Kashmira, Kushtha,
Kushtabhera, Padmakarna,
Padmapatramula, Pushkara,
Pushkarajata, Pushkaramula,
Kemuka, Kembhuka,
Supatra, Dalamalinee,
Swalpavita, etc

Malayalam - Anakuva, Channa,
Channakuva, Kottam,
Pathimukam,
Pushkaramoolam

Tamil - Kottam, Kudavam,
Kugaimanjal, Vengottam,
Malaivasambu etc.

The Sanskrit synonyms *Pushkarajata* and *Pushkarabheda* are to be specially noted. The first name literally mean-

that the plant is growing out of Pushkara. A Costus growing out of the lotus (pushkaram) is quite inconceivable. So, it may be inferred that the word means water, which is also known as pushkaram. Costus usually grows in cool, shady places with plenty of water in the soil, or even near watercourses.

Pushkarabhedu may be interpreted as another form of the medicinal plant *Pushkaram*, but it is not the genuine one.

The Malayalam synonyms *pathimukham*, *kollom* and *pushkaramoolam* are indicative of three different plants. All the three names given to one plant make them meaningless and are thus useless in identifying the plant.

Coffea tranvancorensis W & A. (Rubiaceae)

In Keralam, the root of this plant is widely used as *pushkaramoolam*. There are no vernacular or Sanskrit names for this plant. Further, no medicinal value is ascribed to the roots of this plant, in any of the publications on medicinal plants. So, its use as a drug plant is questionable.



Alpinia galanga



Rasna

This is yet another highly controversial drug. Ten different plants are currently being identified and used as 'rasna' in different regions. At present there is difficulty in ascertaining which one of these is the genuine drug plant.

The rasna root is reported to be fragrant and useful in treating rheumatism and other conditions of vitiated Vata.

Alpinia galanga swartz. (Zingiberaceae)

Sanskrit	- Rasna, Elaparni, Gandhamoola, Kulanja, Nakuli, Sugandhavacha
Malayalam	- Aratha Peraratha
Tamil	- Arathni, Perarathni

The characteristics indicated by the Sanskrit synonyms are all applicable to this plant. So *Alpinia galanga* can be accepted as rasna.

Vanda tessellata Hook. ex g. Don. (Orchidaceae) (*V. roxburghii* R. Br)

Sanskrit	- Nakuli, gandbanakuli, Rasna, Sarpagandha, Sugandhamoola, Vriksharuha, Elaparni
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Malayalam – Maravazha

The synonym 'Viriksharuha' is appropriate to this plant because it is an epiphyte. However, it is a very rare plant and also difficult to collect. That must have probably been the reason for finding another plant with similar properties and naming it also 'rasna'. Moreover, Alpinia can be easily cultivated.

Pluchea lanceolata C. B. Clarke (Compositae)

Sanskrit – Rasna

In North India, this is the plant considered as rasna. While the first two plants are monocots, this is a dicot. The leaves are the officinal parts. So, it is very doubtful whether this plant's leaves will have the same properties as the rhizomes of either Alpinia or Vanda.

Withania coagulens Dunal (Solanaceae)

In Sindh, and neighbouring regions this plant is known as 'rasan'. Perhaps it may be a nervine tonic like *W. somnifera* and, hence, useful in the treatment of Vata.

Viscum album L. (Loranthaceae)

This dicot plant is a stem parasite growing on trees. So the name 'Viriksharuha' is applicable. The officinal part is the fruit. Its reported properties are not the same as that of rasna. It acts on the heart just like digitalin, and on uterus like ergot. So, using it as rasna is questionable.

Aristolochia indica L. (Aristolochiaceae)

Sanskrit — Nakuli, Iswari, Arkamoola,
etc.

Malayalam — Karalakam, Karalayam,
Iswaramulla, Garudakkodi,
etc.

Tamil — Garudakkodi, Iwaraver,
Perumaruntu

In some nighandus, the names Nokuli and Gandhanakuli
are given as synonyms of rasna.

A. indica is equated with *gandhanakuli* and *A. bracteata*
with *nakuli*. But it is very doubtful whether *A. indica* has
the properties of genuine *rasna*.

Inula racemosa Hook. (Compositae)

Sanskrit — Pushkaram

Malayalam — Pushkaramoolam

Tamil — Pushkaramoolam

The Sanskrit name *rasna* is not found applied to this
plant, even as a synonym. Thus, its use as *rasna* is ques-
tionable. Moreover, most physicians treat it as a separate
drug.



***Rauwolfia serpentina* Benth. ex kurz.
(Apocynaceae)**

Sanskrit	- Ahilata, Abimardani, Bhadra, Nakuli, Gandhanakuli, Sarpagandha, Surasa, Iswari, etc
Malayalam	- Chauvanna avalpori
Tamil	- Chovannavalpori

Physicians in Bengal call this plant 'moola rasna'. The synonyms Nakuli and Gandhanakuli are pointed out in justification. Whether their stand is right is a matter of opinion. Once a plant is equated with a particular drug, it is only natural to apply all its synonyms to that plant.

***Catheranthus roseus* G. Don. (Apocynaceae)**

Malayalam	- Ushamalari, Nithyakalliani, Smasanamulla, etc.
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This is called 'trinarasna' and is used as rasna in many places.

***Enicostemma littorale* Blume (Gentianaceae)**

Sanskrit	- Krimihrita, Ksharakarma, Magajhara
Malayalam	- Vellaragu
Tamil	- Vellaragu, Vellari

There is no justification whatsoever for equating this plant with rasna.

Osbeckia wightiana (Melastomaceae)

It has been found that some dealers in South India are supplying the stem of this plant under the name of 'aratta'. This is because in some places in the South, the above plant is known by that name, although it has no relation at all to the real aratta.

When everything is considered, the use of *Alpinia galanga* as rasna can be recommended. It also has an acceptable substitute in other species of the same genus.

a) *Alpinia calcarata* Rosc.

Tamil - Amkolinji

b) *Alpinia zerumbet* Burtt. & Smith (*A. speciosa* K. schum)

Light galangal - Punnagachampa

Both of these are used as substitute of *A. galanga* (Greater galangal).

Alpinia officinarum Hance (Lesser galangal)

Being known as lesser galangal, this is the species that deserves the vernacular name 'Chittaratta'. It is used as an aromatic stimulant and carminative, rather than as a raw drug. It is commonly used in curry powder blends and for flavouring liquors and tobacco.



Barleria prionites



sahachara

The botanical identity of this drug is not yet established beyond controversy. At least four different plants are in use under the name of sahachara.

Many physicians are of opinion that the drug should be equated with Strobilanthes (*Nilagirianthus*), but the synonyms and qualities ascribed to *sahachara* are not mentioned in the case of *Strobilanthes* (*Nilagirianthus*), while they are cited for *Barleria*.

Barleria prionites L. (Acanthacene)

Sanskrit	- Sahachara, Ananta, Kanaka, Mahasaha, Mridukanta, Udyanapaki, etc
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Malayalam - Chemmuli, Kuttivettilla

Tamil	- Kurinji, Kovindam, Varalmulli, Manjachemmuli
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Ecbolium viride (Forsk) Mehril (Acanthacene)

Malayalam	- Karinkurinji, Odiyamadanta
Tamil	- Neelambari, Odiyamadanta

On the basis of *Ashtangahrudayakosam*, many physicians in Keralam equate this plant with *sahacharam*. The root of this plant is used medicinally in Africa and Arabia. But



Nilgirianthus ciliatus



the authors Kirtikar and Basu do not mention its use in Ayurveda.

Barleria cristata Linn. (Acanthaceae)

Sanskrit	- Jhinti, Kuravaka, Raktajhinti, Subhaga, Sonjhintika
Tamil	- Neela chemmulli, Semulli, Vellainilambaram

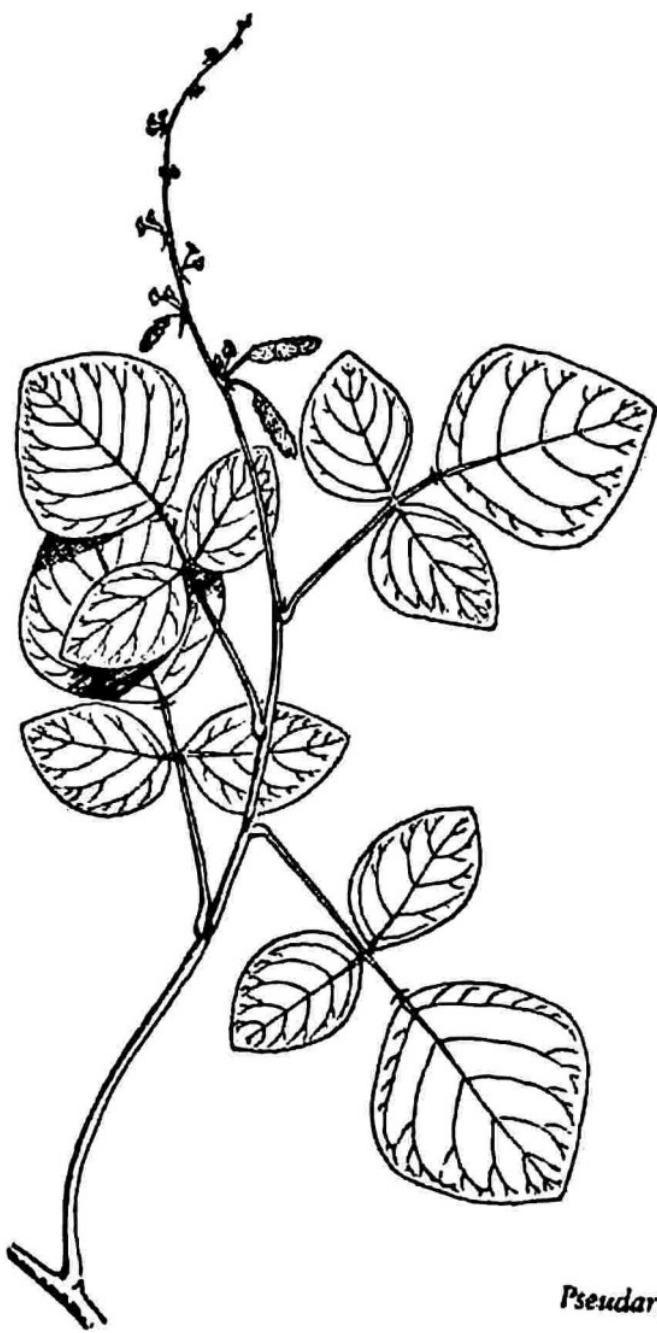
In Ayurvedaviswakosam, this plant is equated with *sahacharam*. But in Keralam it is not used medicinally; it is treated only as a garden plant.

Strobilanthes ciliatus Nees. (Acanthaceae) (*Nilgririanthus ciliatus* (Nees) Bremek)

Sanskrit	- Sahachara, Sairyakah
Malayalam	- Kurinji, Karinkurinji, Vellakkurinji

The Malayalam name *karinkurinji* is not quite appropriate for this plant because its flowers are white. The qualities ascribed to *sahacharam* are not reported for this plant. According to Kirtikar and Basu, only the bark and the flowers of this plant are of some medicinal value. Despite all this, in Keralam this is the plant used as *sahachara*.

Modern authors have pointed out the need for a thorough pharmacological investigation of this plant.



Pseudarthria viscida



Salaparni

Pseudarthria viscosa W&A. (Papilionaceae)

Sanskrit - Salaparni, Triparni,
Sanaparni

Malayalam - Moovila

Tamil - Muvila, Neermalli

This is the plant widely accepted and used as 'Moovila' in Keralam. However, there is an opinion that *Uraria picta* Desv., with trifoliate leaves and mottled leaf-blade, should be selected as moovila. Perhaps it is better to consider it as an acceptable substitute for *Pseudarthria*, especially because the latter is on the way to extinction.



Crotalaria retusa



Sanapushpi

Synonyms of this plant 'ghanta' and 'ghantarava' indicate the sound producing property of the fruit. Most of the authors equate this drug with *Crotalaria* but regarding the species there is difference of opinion. Majority regard *C. verucosa* L. as the genuine one.

Crotalaria verrucosa L. (Papilionaceae)

Sanskrit — Sanapushpi, Dhavani.
Brihatapushpi etc.

Instead of this widely accepted plant several other species of the genus are being used. They are *C. juncea* L., *C. pallida* Aiton and *C. retusa* L. They may be treated as substitutes.



Sankhapushpi

There are six different plants identified with this drug. The name Sanchapushpi indicates conch-like flowers for the plant. But some of the plants taken as sanchapushpi do not have such flowers.

Convolvulus pluricaulis Choisy (Convolvulaceae)

Though mentioned in some books this plant is not given names in Sanskrit or modern languages except Gujarati. But it is reported to contain an alkaloid called Sankhapushpine.

Evolvulus alsinoides L. (Convolvulaceae)

Sanskrit - Vishnukranta, Vishnugandhi.

Nilapushpi,

Baghuvishnukranta

Malayalam - Vishnukranti, Krishnakranti

Tamil - Vishnukranti

Like the previous plant, this also has regular trumpet-shaped flowers which has little likeness to a conch. The name 'Sankhapushpi' is not given as a synonym for the plant.



Causonis decussata



Canscora decussata Schutt. (Gentianaceae)

Sanskrit - Sankhapushpi, Dandotpala,
Akshapida, Kambapushpi,
Mahatikta, Nakuli,
Shankhini, Tikta, Tunduli,
Visarpini

Malayalam - Kanchankora

In this plant the flower is bilaterally symmetric and a distant resemblance to a conch may be found. The plant is acclaimed as a good brain tonic.

Canscora diffusa R. Dr.

This is used as a substitute for the above species.

Clitoria ternatea L. Papilionaceae (Fabaceae)

Sanskrit - Ashphota, Gokarna,
Aparajita, Girikarnika,
Gokarnika, Neelaparajita,
Vishnukranta, Gavadhanee

Malayalam - Sankhupushpam,
Malayamukki, Kata bhi,
Kakkanamkodi

Tamil - Karumkanam, Kakkam,
Kakkattankodi,
Kodikokkanam

The Sanskrit name 'Sankhapushpi' is found among the synonyms of this plant. As far as shape of the flower i

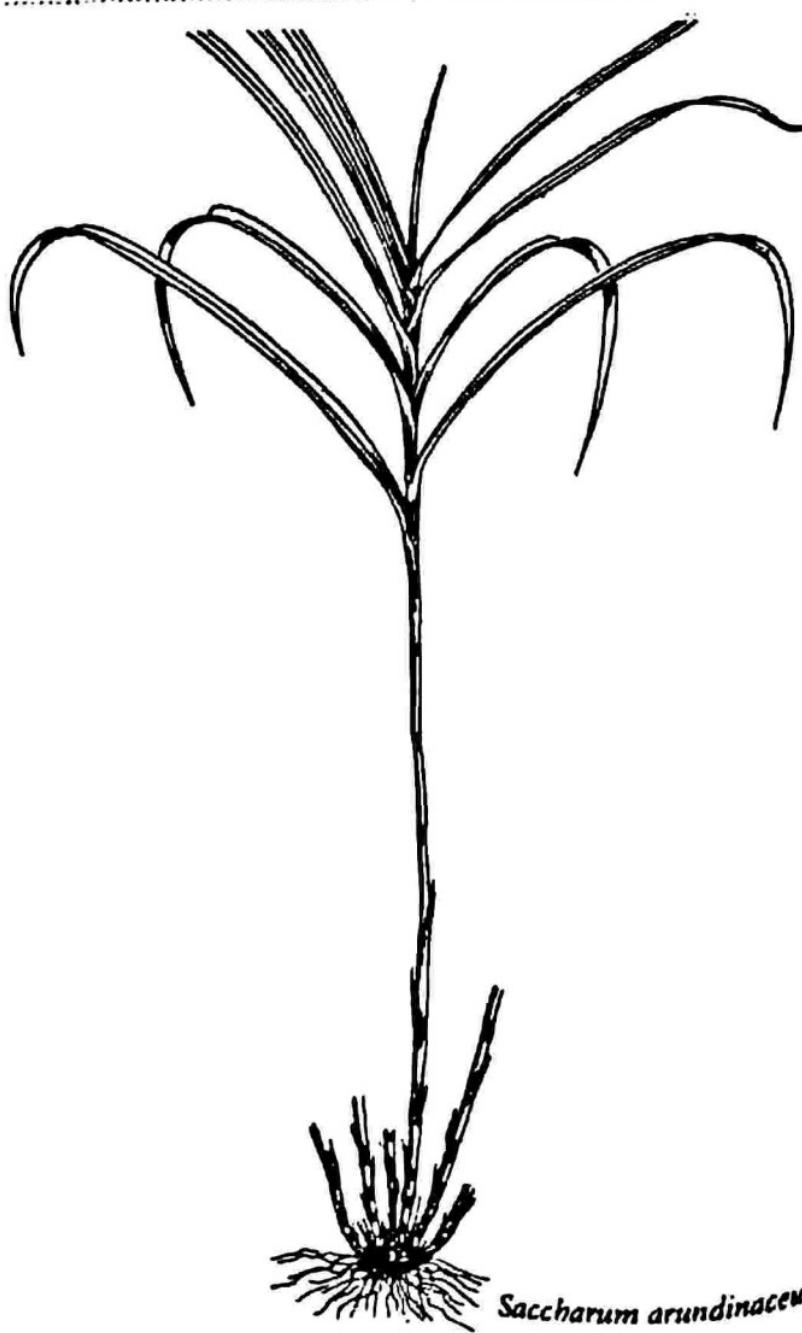
concerned the name 'gokarna' is more appropriate than 'Sankhapushpi'. Whether this plant can be equated with Canscora is doubtful; because the medicinal properties of the two are not exactly similar. It is quite possible that the vernacular name is the result of a misinterpretation Clitoria can be considered as 'Sankhapushpi'; only if it contains the same organic compounds as present in Canscora.

The same may be stated about *Convolvulus pluricaulis*. As it contains the alkaloid - Sankhapushpine - the medicinal property of the plant may be similar to that of Canscora. Then, considering the shape of the flower, it can be accepted as a substitute for Canscora which is to be taken as genuine Sankhapushpi.

Lavandula bipinnata O. Kuntze. (Lamiaceae)

No Sanskrit name could be found for this plant. It is reported that this plant is medicinally used in Gujarat. Main property ascribed is anti-toxic. There is little evidence not to consider this plant as spurious.





Saccharum arundinaceum



sarah

Saccharum arundinaceum Retz. (Poaceae)

Sanskrit — Gundra, Munja, Sarah,
Tejanaka etc.

Malayalam — Sarappullu, Mekhalappullu,
Ama

Tamil — Munji

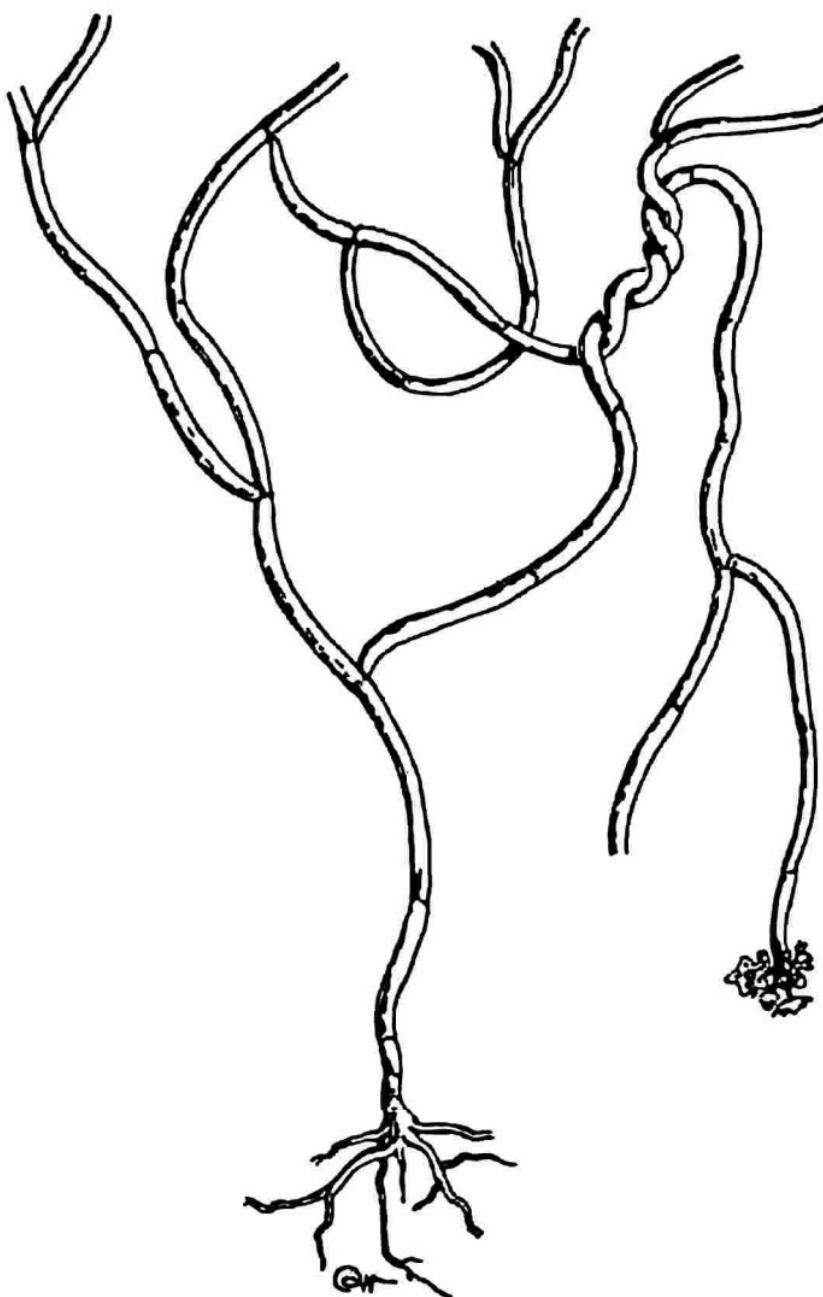
Saccharum munja Roxb. (Poaceae)

Sanskrit — Bana, Ikshukanda, Munja,
Sarah etc.

The above two plants are widely accepted as the source-plant. However in Keralam another plant is also found in use.

Arundo donax L. (Poaceae)

From available literature no Sanskrit name can be found for this plant. It is not supposed to be present in W. Coast. How then it happened to be equated with 'sarah' is a mystery. It may be taken as unauthorized substitute if not an adulterant.



Sarcostemma brevistigma



Saumya (Soma)

The 'Soma' mentioned in Vedic literature has not been conclusively identified. Several plants are equated with soma or somavalli by different authors.

Ephedra vulgaris Hook. f. (Gnetaceae)
(*E. gerardiana* Wall.)

This is a gymnosperm. It is a temperate climate plant, found in the sub-Himalayan regions. No Sanskrit or vernacular names are found for this plant, but some North Indian authors equate the plant with somavalli. It contains alkaloids like ephedrine and is very effective against asthma.

Periploca aphylla Dene. (Asclepiadaceae)

This plant is found in northwest India and beyond. The people in those regions, especially the Parsis, call it *Huma* or *Homa* and equate it with soma.

Sarcostemma brevistigma Wight.

Sanskrit - *Chandravallari, Dhanurlata,*
Dvijaphiya, Sortha,
Sokakshiri, Somalata,
Yejnavalli, Yejnasreshtha, etc



Malayalam – Somalata

Tamil – Kodikkali, Somam

This is the plant accepted as 'somalata' by physicians in Keralam. There is another closely related species, which laymen may not distinguish from the first, which is also taken as soma.

Sarcostemma brunonianum W. & A.

(Asclepiadaceae)

The synonyms given to the above species may also be applied to this plant.

Ceropegia juncea (Asclepiadaceae)

This plant closely resembles sarcostemma in habit, and is often mistaken for somalata. But it can be easily distinguished. Sarcostemma has milky latex and small, white star-like flowers. Ceropegia has only watery sap and its flowers are larger and lantern-like.

Cannabis sativa L. (Cannabinaceae)

Sanskrit – Ajaya, Bhanga, Chapala,
Dhurtapatni, Ganja, Matuli,
Nili, Shivapriya, Trilokyavijaya,
Unmathini, etc

Malayalam – Kanchavu

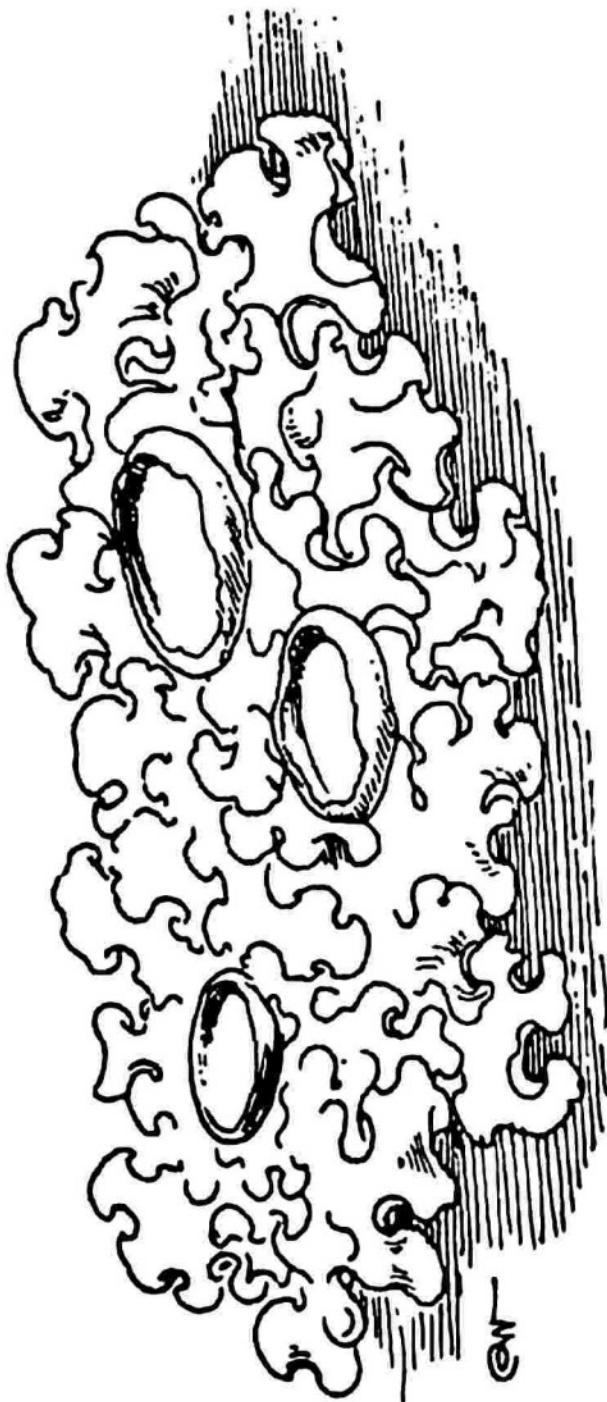
Tamil – Nangi, Ganja, Kalpam,
Korkkarmuli

The fact that *soma* is used for preparing a fermented drink called 'somarasa' may be the reason for equating this intoxicating and hallucinating plant with *soma*.

Agaricus sp.

Gordon Warson identified a species of this fungus - mushroom - as *soma*. It came to India along with the Aryans. It is, however, highly doubtful that a mushroom would be named *somavalli*. Only a weak-stemmed climbing plant would be called *valli*.

Rajanighandu, in his writings, equates the properties of *Sarcostemma brevistigma* with those of the Vedic *soma*. So, it is accepted as *somalata* not only for medicines but also for Vedic rituals.



Parmelia perlata



śhaileyam

Parmelia perlata (Huds.) Ach. (Parmeliaceae)
Lichen.

Sanskrit — Saileya, Sailapushpa,
Shilavalka, Sailakam,
Sailalbhavam

Malayalam — Cheleyam, Kalpayal, Kalpoov
Tamil — Kalpasi, Kalpoo, Marappasi

This is the accepted genuine 'Saileya'.

Plantago ovata Forsk. (Plantaginaceae)

Sanskrit — Snigdhajeera, Snigdhabeeja,
Eshadhgolam

Malayalam — Snigdaajeerakam, Ispakolari
Tamil — Iskolveerai, Ishappukolvirai

In Keralam the seeds of this plant is used by many as 'saileya'. But the qualities of the two are not similar. *Plantago* cannot be considered equivalent to or even substitute of *Parmelia*.



shariba

Hemidesmus indicus R. Br. (Asclepiadaceae)

- | | |
|-----------|--|
| Sanskrit | - Shariba, Sariva, Anantamoola,
Ananta, Asphota, Bhadravalli,
Gopavalli, Sugandhi etc. |
| Malayalam | - Naruneendi, Nannari,
Narunari, Paravalli |
| Tamil | - Arakkam, Kiruthinavalli,
Nannari, Pargodi, Siru nannari |

This plant is easily identified by the characteristic aroma of the tuberous.

Ichnocarpus frutescens R. Br. (Apocynaceae)

- | | |
|-----------|--|
| Sanskrit | - Ananta, Bhadra,
Krishnasariva, Krishnavalli,
Sariva, Shariva |
| Malayalam | - Palvalli, Parvalli |
| Tamil | - Udargodi |

Bengal physicians use the root of this plant as Shariba. In medicinal properties it is more or less similar to genuine shariba but as a flavouring material it is inferior. It may be considered as an acceptable substitute to *Hemidesmus*.



Vallaris solanacea O. Kuntze (Apocynaceae)

Sanskrit - Bhadramunja, Bhadravalli,
Visalyakrit, Visalyakarani

This plant has none of the medicinal properties of the above two plants. Still, it is used in some parts of North India, probably on the excuse that it is also called Bhadravalli.



Hemidesmus indicus



Kaempferia galanga



shathi

This has become a controversial drug, because the names Shathi, Kochora, Karbura and Gandhamoola are indiscriminately applied to more than one plant.

Hedychium spikatum Ham. ex Smith
(Zingiberaceae)

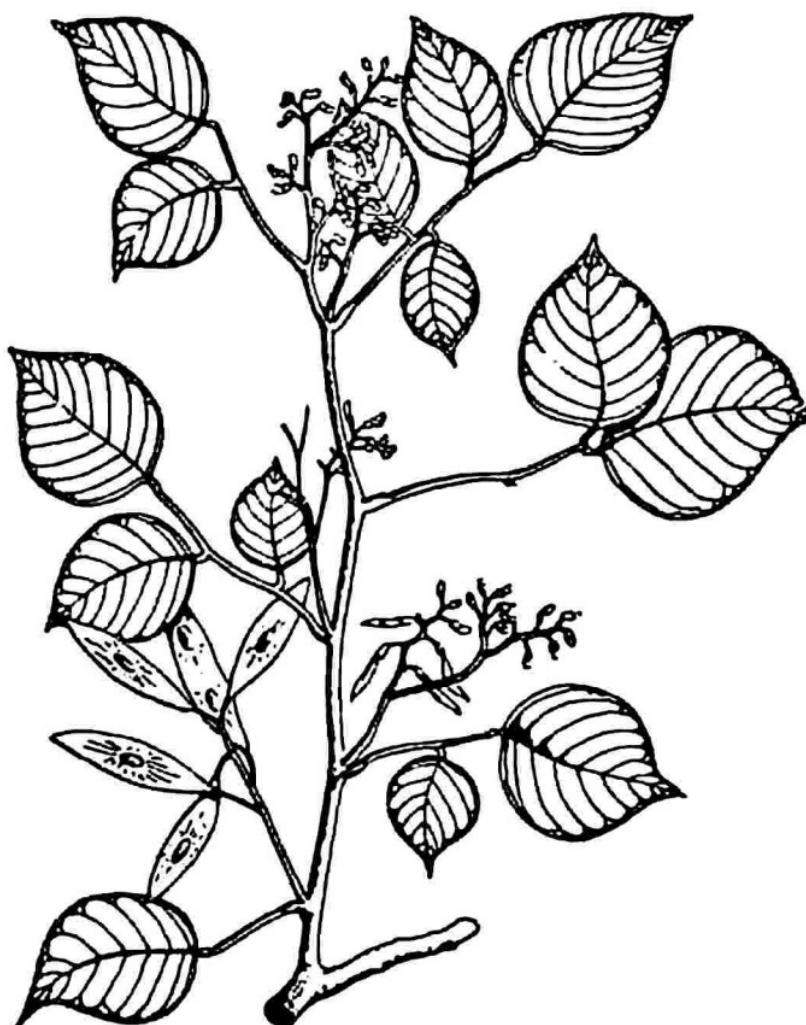
- | | |
|----------|---|
| Sanskrit | - Amala haridra, Durva,
Gandhamoolim, Haimi,
Kachhora, Karbura, Karchura,
Karpura shathi, Palashi, etc |
| Tamil | - Seemaikichilikkilangu |

This is the plant considered as *shathi* in North India.

Kaempferia galanga L. (Zingiberaceae)

- | | |
|-----------|--|
| Sanskrit | - Chandramulika,
Singandhvacha, Dravida,
Karchuraka, Shathi, Karbura,
Kachuram, Palasa, Rajani, etc |
| Malayalam | - Kacholam, Kachoram, Kachuram |
| Tamil | - Kacholam, Kachuri,
Kichilikkilangu, Pulankilangu |

In South India, this is the plant equated with *shathi*. If one goes by the name only, *Curcuma zeodaria* will also have to be accepted as *shathi*. Only a comparative study of the plants concerned will help to resolve this controversy.



Dalbergia sissoo



Simsapa

Dalbergia sisoo Roxb. (Papilionaceae)

Sanskrit — Simsapa, Aguru, Kapila,
Pipala, Dhira, Vira,
Yugapatrika etc.

Malayalam — Iruvil, Irupool, Seesam

Tamil — Itti, Sisu, Nukku, Gette

Three forms of 'simsapa' are mentioned in ancient texts.
All these are equated with species of *Dalbergia*.

Xylia xylocarpa (Roxb.) Taub. (Mimosaceae)

Sanskrit — Kanakakuli

Malayalam — Irul, Irumul, Irupul

Tamil — Irul, Irvel

The Malayalam names of these plants being very similar,
Xylia has been equated with 'simsapa' in Keralam and it
is widely used as such. But the wood of *Xylia* is not re-
ported to be of any specific medicinal property. So it is a
spurious drug plant.



Anisomeles malabarica



Sprikka Elamoolam

Anisomeles malabarica (L.) R. Br. (Lamiaceae)

Sanskrit - Oshtaphala, Vaikuntha,

Sprikka etc.

Malayalam - Karintumpa, Peruntumpa,

Peyamaratti

Tamil - Peyamarutti

All modern authors agree that this is the genuine drug-plant.

Adenosma Indiana (Lour.) Merr.

(Scrophulariaceae) (*A. capitatum* Benth.)

Malayalam - Karintumpa

Though taxonomically different from the above plant this has been in use as sprikka in Keralam since long. So it may be treated as a substitute.



Calycopteris floribunda



Susavi

Calycopteris floribunda Dam.

Sanskrit - Susavi, Svetadhataki,

Toyavalli

Malayalam - Pullanji, Pullani, Varavalli

Tamil - Minnerkkodi

In Amarakosam the name 'susavi' is given as a synonym of 'krishnajiraka'. On the basis of this many physicians take blackcumin, the seed of *Nigella sativa* L. as 'susavi'. There is no justification for this.



svetapunarnava

Boerhaavia verticillata (Nyctaginaceae)

This white-flowered species is generally accepted as 'svetapunarnava'.

Trianthema portulacastrum L. (Aizoaceae)

Sanskrit - Upotaki

Tamil - Pasalikkeerai

Many physicians consider this plant as 'svetapunarnava' but it does not have the medicinal properties of *B. verticillata*. Moreover it is not common in South India. That may be the reason for mistaking this plant with a superficial resemblance to *Boerhaavia* and having white flowers as 'svetapunarnava'. But *Trianthema* is to be treated as a spurious drug.



śwarnakṣhīrī

Description in ancient texts indicate that the source plant of this drug is alpine, with acrid leaves and containing golden-yellow latex. Two forms of 'kanchanakshri' are also mentioned. Modern authors equate them with species of *Euphorbia* and *Garcinia*.

Euphorbia thomsoniana Boiss (Euphorbiaceae)

This is supposed to be the genuine source of the drug. But not being easily available it must have been substituted with others.

Garcinia morella Desv. (Clusiaceae)

Sanskrit - Amrithadruma, Kalatala,
Mahabala, Tamala, Tapitha
etc.

Malayalam - Karukkampuli, Pinarpuli
Tamil - Makki, Solaipuli, Irevalsinni

Solidified yellow latex of this tree is known as 'gum gam-boge'. It is treated as a different drug - 'kankusta'. So this plant cannot be equated with 'swarnakshiri'.



Argemone mexicana L. (Papaveraceae)

Sanskrit — Brahmadandi, Hemadugdha,
Pitapushpa, Swarnakshiri
etc.

Malayalam — Brahmadandi, Katteruma
Tamil — Karukkum

In practice this is the plant used as the source of the drug. This Mexican plant was introduced to India rather late. So there is little chance of it being mentioned in ancient texts. It must have been found to be a suitable substitute for the original. Once accepted, all the synonyms of 'swarnakshiri' are applied to it.



tagara .

Valeriana jatamansi Jones. (Valerianaceae)

Sanskrit - Nata, Tagara, Barhana,
Kalanusaraka, Pindatagara,
Padika

Malayalam - Takaram
Tamil - Takaram

Limnanthemum indicum (L.) Thw.
(Gentianaceae) (*Menyanthus indicum*)
(Menyanthaceae)

L. cristatum Griseb. (Menyanthaceae)
L. macrospermum V. Nair (Menyanthaceae)

Roots of all the above three species of *Limnanthemum* Gmel. are found being sold as 'Takaram'. They do not have the qualities of Valerian root. So they must be considered spurious.

Hedyotis auricularia (L.) K. Schum.
(Rubiaceae)

Malayalam - Kudalchuruki



Morinda umbellata L. (Rubiaceae)

Sanskrit – Daruharidra, Peetadaru,
Pasupatam, Alakshuka

Malayalam – Kudalchurukki

Tamil – Manjanathikkodi,
Mattikkodi, Nuna, Surinji



Amaranthus spinosus



tanduliya

Amaranthus spinosus L. (Amaranthaceae)

Sanskrit — Tanduliya, Tandula, Aparisha
etc.

Malayalam — Mullancheera

Tamil — Mullukkeerai

According to most authors, this is the genuine source plant.

Amaranthus viridis L. (Amaranthaceae)

Sanskrit — Tanduliya

Malayalam — Cherucheera

This plant is also accepted as 'tanduliya'.

Celosia argentea L. (Amaranthaceae)

Sanskrit — Mayurasikha, Barhichuda,
Sahasrahi etc.

This is to be regarded as an adulterant as it belongs to a different genus.



Maranta arundinacea



tavakshiri

Maranta arundinacea L. (Marantaceae)

Sanskrit - Tavakshiri, Tugakshiri

Malayalam - Koova

Tamil - Kuvai, Araruttukkilangu

This is West Indian arrowroot.

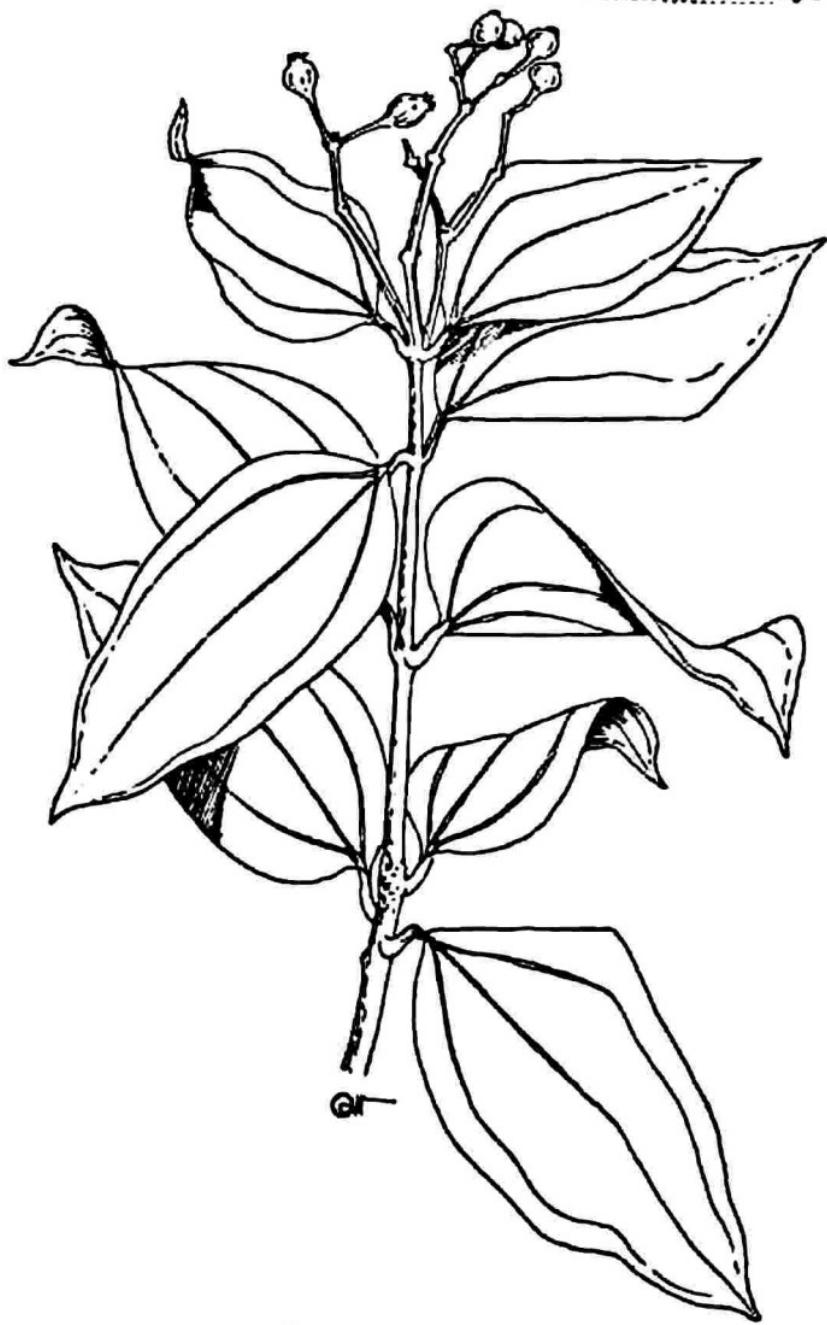
Curcuma angustifolia Roxb. (Zingiberaceae)

Sanskrit - Payakshira, Pistika,
Talakshira, Tavakshira,
Godhumaja, Tandulodbhava

Malayalam - Koova, Kattukoova

Tamil - Koovai

Today this plant is treated as an acceptable substitute for the above plant. But it requires purification before use. Whether Maranta was present in India in ancient times is a relevant question.



Cinnamomum tamala



tejapatra

Cinnamomum tamala Nees. & Eberm.
(Lauraceae)

Sanskrit	- Tamal. Tamalapratram.
	Patram, Plasam, Copanum,
	Kalatalam
Malayalam	- Pachila Cheruvazhana
Tamil	- Talisapatri

In Keralam this is the accepted source of the drug.

Pogostemon heyneanus Benth. (Lamiaceae)

Malayalam	- Pachila
Tamil	- Kadirrahai

Some dealers are supplying this plant as 'tamalapratram' and manufacturers are using it as such. The only similarity between the genuine drug and this plant is that both have aromatic leaves. Whether this plant can substitute *Cinnamomum* is a moot question. Here is another case of manufacturers blindly depending upon suppliers for identification of drug-plants. It is doubtful whether the two plants have been comparatively studied for their medicinal properties.



Gentiana kurroa



trayamana

Gentiana kurroa Royle (Gentianaceae)

Sanskrit — Tryamana, Trayanti

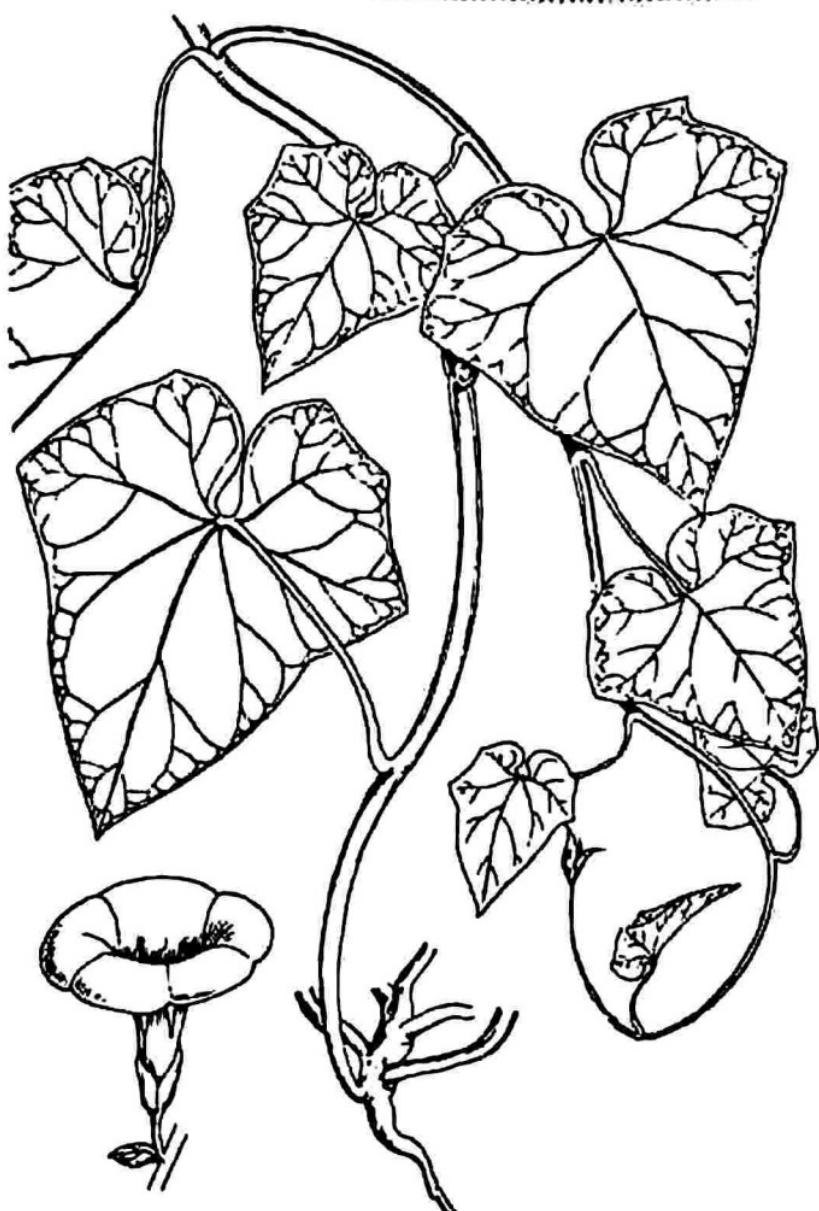
Malayalam — Trayamana

Tamil — Kampantiral

In some translations of authoritative texts the name 'trayamana' is equated with 'brahmi' which is identified as *Bacopa monnieri*. But in *Materia Medicas* Brahmi is not mentioned as synonym of 'Trayamana'. It may be concluded that 'Brahmi' and 'Trayamana' are two different plants.

Thalictrum foliosum DC. (Ranunculaceae)

In *Ashtangahridayakosha* this plant is identified as 'Trayamana'. But the qualities attributed to this plant do not agree with those of *Gentiana kurroa*. In that respect it is more like 'peetarohini' which is *Coptis teeta*. So *Thalictrum foliosum* DC. cannot be taken as 'trayamana'.



Opervulina turpethum



trivrit

Two kinds of Trivrit are described in texts – brown and black. Of these the brown variety is not known. It is the black one that is now used as drug.

Operculina turpethum Silva Manso.
(Convolvulaceae)

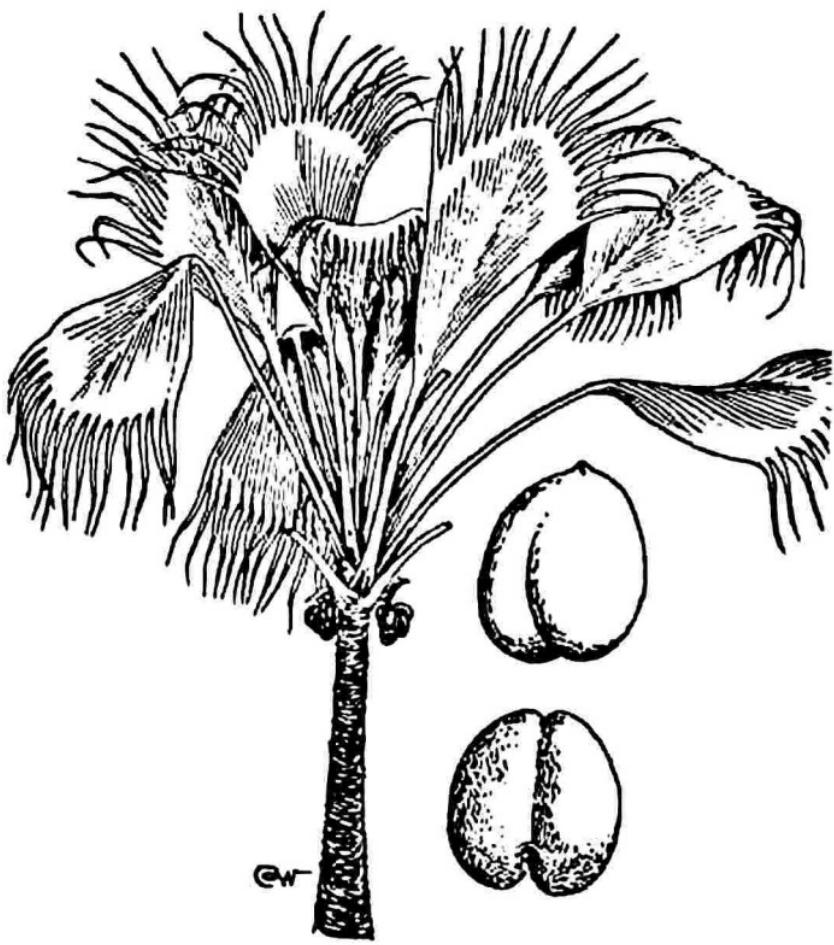
Sanskrit	- Aruna, Kalaparni, Laghurochani, Trivrit, Triputa, Tribhandi etc.
Malayalam	- Trikolpakonna, Chiraka
Tamil	- Adimbi, Kumbam, Sivadai, Samaram etc.

This plant is called Trivrit. Probably because its young stem is triquetrous with narrow wing at the angles. In Keralam, this is the source plant of genuine trivrit.

Marsdenia tenacissima W. & A.
(Asclepiadaceae)

No Sanskrit name. Malayalam and Tamil names are unknown.

Root of this plant is sold as white trivrit, but it is not purgative like the former. So it is very doubtful whether it can be even a substitute for the same.



Lodoicea maldivica (L. seychellarum)



Ubdinarikayium (Sea Coconut)

Lodoicea seychellarum Labill. (Arecaceae)
(Palmae)

Sanskrit - Ubdinarikayum, Arkaraga,
Agnijara.

Malayalam - Aklarithenga, Kadalthenga.
Irattathenga

Tamil - Kadalthengai

This plant known as 'sea-coconut' is found only in some islands of the Indian ocean. The fruit is large and double. Seed is more than 30 cm long and about equally broad.

What is now usually available on market is a small seed about 10 cm or less long and single chambered. Most probably it is the fruit of another palm called 'water coconut', named *Nipa fruticans*. Both being members of the same family, Palmae, the kernel is of similar physical properties. Whether they are similar in qualities is to be ascertained.



Basella alba



Upodika

Basella alba L.

Sanskrit - Apodika, Upodika, Vishala,
Potaki, Upoti etc.

Malayalam - Baselacheera

Tamil - Vasalicheerai

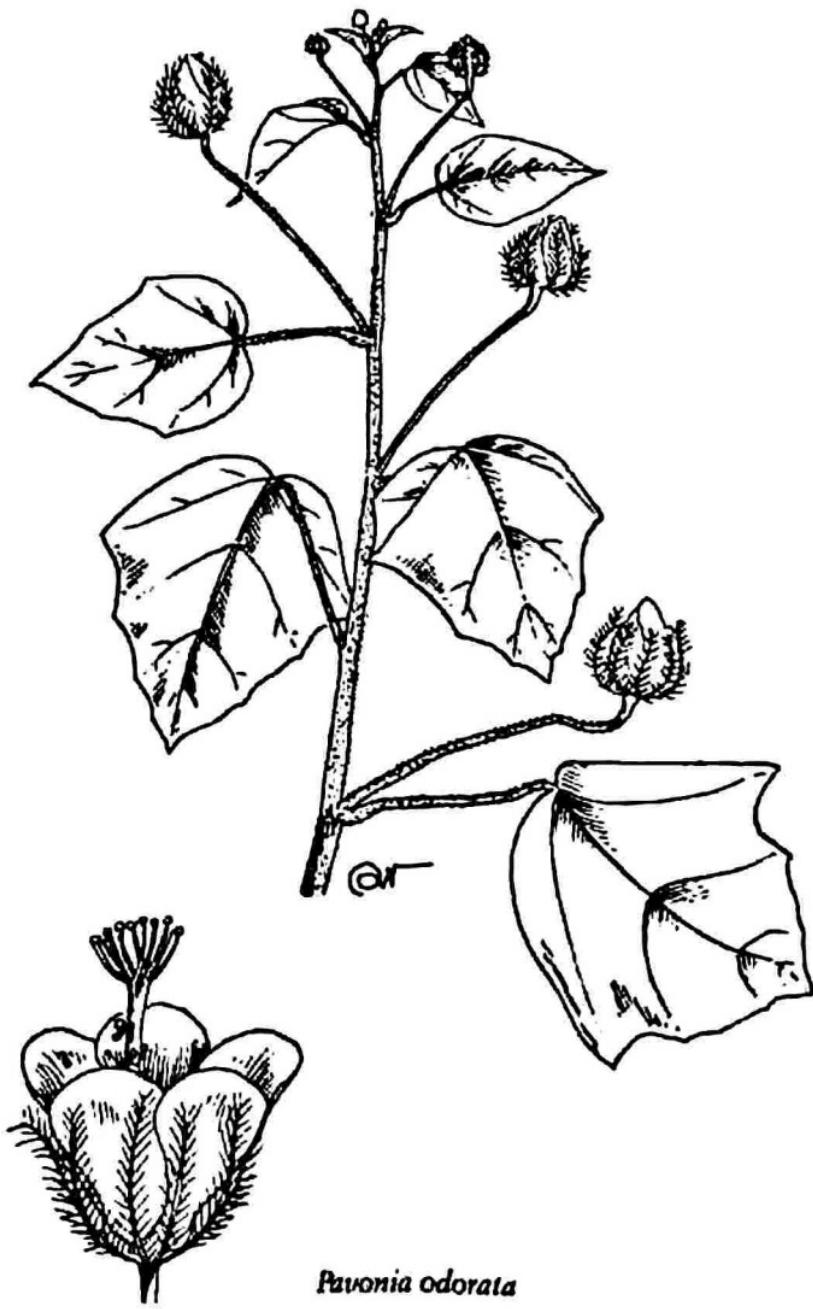
Most authors accept this plant as the genuine source of the drug. But there are several unauthorized substitutes in use.

Ludwigia hyssopifolia (Don.) Exell. (Onagraceae)

Ludwigia peruviana (L.) H. Hara (Onagraceae)

Ludwigia octovalvis (Jacq.) Raven (Onagraceae)

All the above three plants are used as unauthorized substitutes by many physicians.



Pavonia odorata



Valakam

Plectranthus vettiveroides (Jacob) Singh &
Sharma (Lamiaceae)

Sanskrit - Valakam, Hriberam

Malayalam - Iravelli

Tamil - Kuruver, Vettiver

Plectranthus zeylanicus Benth. (Lamiaceae)

This is the species commonly used as 'iravelli' all over Kerala. Both the above two species are closely related and similar in properties. So the use of both as drug is justifiable.

Pavonia odorata Willd.

Tamil - Peramutti

The fragrant root of this plant is used as iravelli in some parts of India. Whether this is the genuine drug plant or a substitute is still uncertain.



Vanaharidra

Curcuma aromatica Salisb. (Zingiberaceae)

Sanskrit – Vanaharidra, Aranyaharidra,
Shoti, Shotikn, etc

Malayalam – Kattumanjal, Anakkoova

Tamil – Kasturimanjal, Kattumanjal

Kasturimanjal very closely resembles the cultivated turmeric plant, but it is larger and the rhizome is more aromatic. And, unlike turmeric, the inflorescence grows out directly from the rhizome as a leafless scape. Another characteristic feature that aids in its identification is the velvety texture of the lower surface of the leaf, owing to the presence of short, white hairs all over it.

Curcuma zeodaria Rosc. (Zingiberaceae)

Sanskrit – Dravida, Durlabha, Shathi,
Karchura, Gandhamoolaka,
Gandhasara, etc

Malayalam – Kachoorakkizhangu,
Kattukacholam, Kachoram

Tamil – Pulakkizhangu,
Kichilikkilangu

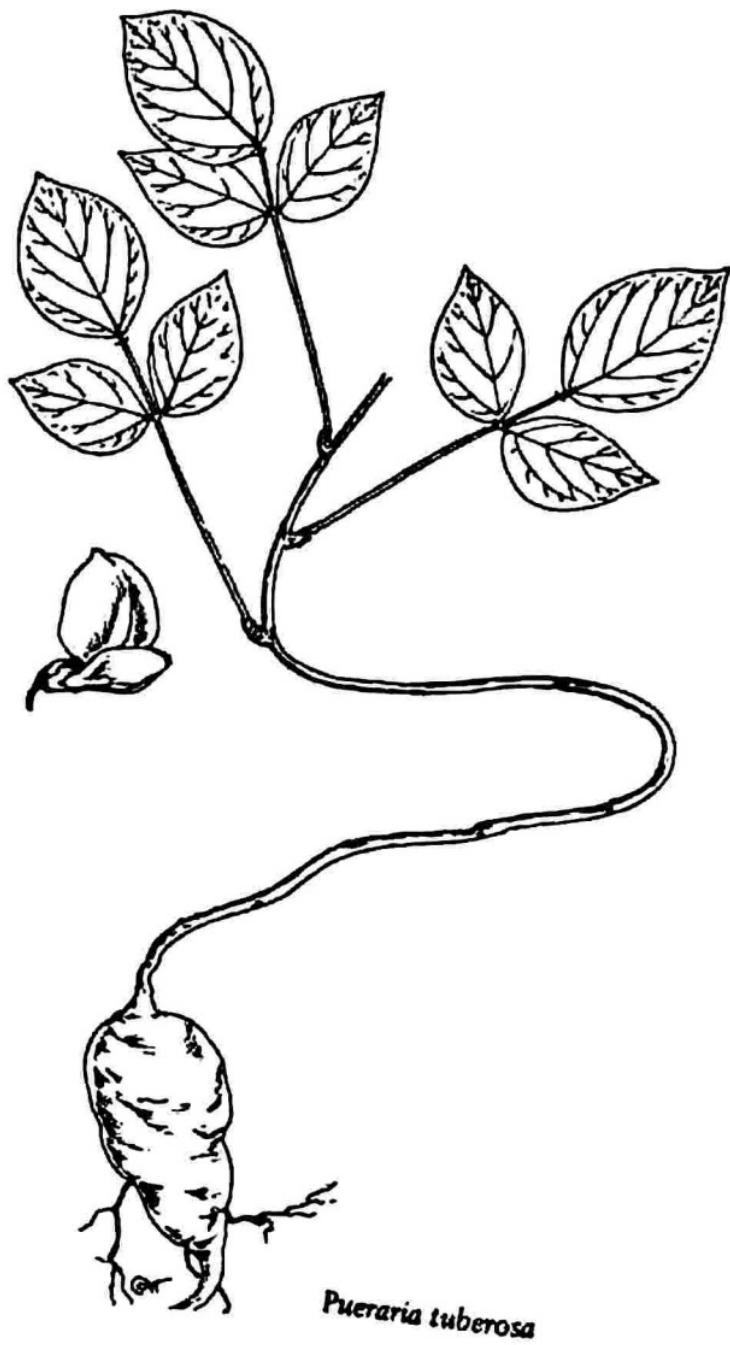
The rhizome of this plant is commonly sold under the name of kasturimanjal. As market material, it is not easy



Curcuma aromatica

to differentiate it from the genuine kasturimanjil. However, as plant, it can be easily distinguished by the presence of a purple streak down the midrib on the upper surface of the leaf and the absence of a velvety lower surface.

The rhizome of this plant usually available in the market may be treated as an adulterant.





vidari

Pueraria tuberosa DC. (Papilionaceae)

- Sanskrit - Bhukushmandi,
Ikshugandha, Kshirasukla,
Kshiravalli, Payasvini,
Swadukanda, Vidari,
Vidarika, Vidarikanda, etc

Malayalam - Palmudakku

The taproot of this plant is swollen into a large, fleshy tuber, which is the officinal part. As the plant is rare in Keralam, another plant, which is also equated with *vidari* is used in its place.

Ipomoea mauritiana facq. (Convolvulaceae) (*I. digitata* L.)

- Sanskrit - All the names applied to *Pueraria* are also given to this plant.
- Malayalam - Palmutakku, Mutualakkanta
- Tamil - Nilappusari, Palmodikkka, Pucharkkaraikkilangu

The properties of this plant are the same as those of *Pueraria*, and so this is an acceptable substitute.



Ipomoea mauritiana



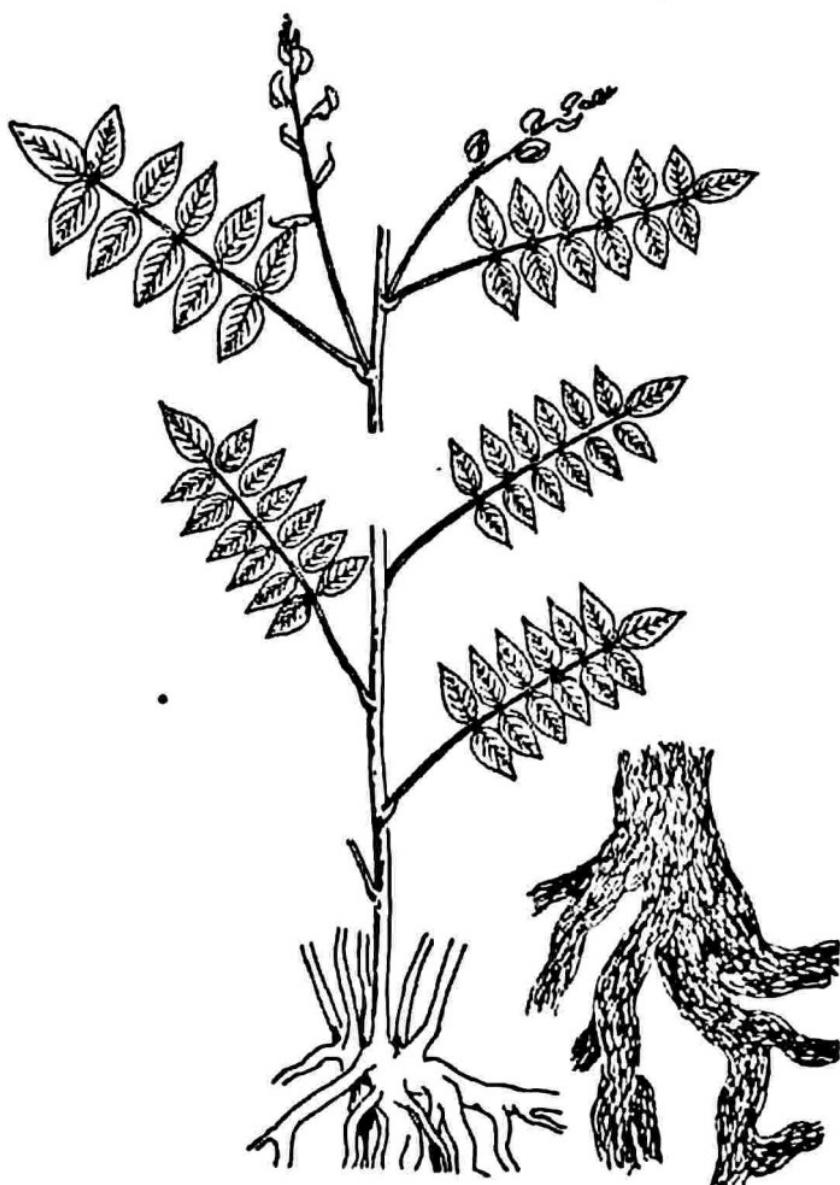
Adenia hondala (Gaertn.) de Wilde
(Passifloraceae) (*A. Palmata* Engl.)

Malayalam – Karimutakku

Manufacturers who require the drug in large quantities now commonly use this plant as vidari.

The tuberous part of this plant is not the taproot as in the previous two, but the basal internodes of the stem, which become progressively thicker. The upper portion of the root may also be included. The tubers sometimes attain a huge size.

The properties of *Adenia* are similar to those of *Ipomoea digitata*. So, it may be treated as a substitute. However, *Adenia* has another species — *A. wightiana* — the tubers of which may also be collected and sold along with the former. The tubers of this species are toxic. Moreover, it is difficult to distinguish between the two, as the dealers only supply the tubers.



Glycyrrhiza glabra



Yashtimadhu

Glycyrrhiza glabra L. (Papilionaceae)

Sanskrit — Madhuka, Yashtimadhu,
Yashtika, Jalayashti, Klitaka
etc.

Malayalam — Irattimadhuram
Tamil — Atimadhuram

This is the genuine source plant of the drug.

Abrus precatorius L. (Papilionaceae)

Sanskrit — Gunja, Kakavallari, Kakini,
Kanchi etc.

Malayalam — Kunni
Tamil — Kundumani, Kunjam,
Atimaduram

Root of this plant is similar to that of the former in appearance and taste. So it is used as an adulterant.

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